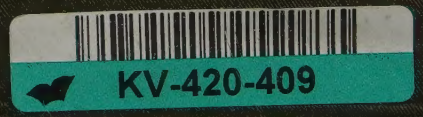
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BEVILLE STANIER.

(FIFTEEN)

A HANDBOOK

TO THE

VERTEBRATE FAUNA

OF

NORTH WALES

BY

H. E. FORREST,

AUTHOR OF "THE VERTEBRATE FAUNA OF NORTH WALES";
"FAUNA OF SHROPSHIRE,"
ETC.

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1919

INTRODUCTORY NOTE.

The present volume is designed to furnish in a convenient form an account of the Birds, Beasts and Fishes of North Wales. Under each species is a brief summary showing its status and distribution in the district. This gives at a glance the information usually sought by a naturalist or visitor coming into North Wales. Those who desire fuller details will find them in my larger work, *The Vertebrate Fauna of North Wales* —quoted herein as "the *Fauna*." This was published in 1907, and in the present volume I am giving, besides the summary under each species, such records and other particulars as have come to hand during the past twelve years. These include the following additional species : Lynx (pre-historic) ; Common, Lesser, and Sibbald's Rorquals ; Barred Warbler ; Willow Tit ; Blue-winged Teal ; Crane ; Sooty Tern ; Great Skua ; and Shagreen Ray. The Sand Lizard, hitherto recorded as doubtful, is now authenticated ; while the American Wigeon is added as doubtful. The total number of species, ignoring doubtful records, is now as follows : Prehistoric mammals 28 ; mammals extinct during the historic period 8 ; existing mammals 43 ; birds 257 ; reptiles 5 ; amphibians 6 ; fishes 151.

September, 1919. H. E. F.

THE

VERTEBRATE FAUNA

OF

NORTH WALES

BEING A HISTORY OF THE MAMMALS, BIRDS, REPTILES, AMPHIBIANS AND FISHES

OF THE COUNTIES OF

Anglesey, Carnarvon, Denbigh, Flint, Merioneth, and Montgomery.

BY

H. E. FORREST.

ILLUSTRATED WITH 28 PLATES DEPICTING NOTABLE HAUNTS OF TYPICAL SPECIES; PORTRAITS; AND A COLOURED MAP OF THE DISTRICT.

The Introduction includes an account of the naturalists who have previously dealt with the subject; a bibliography; a description of the physical features of North Wales; a brief history of the locally extinct Mammals; details of routes taken by birds on migration, etc. The main portion of the book consists of detailed accounts of each species treated on the following plan :—

In addition to the English and scientific names, the Welsh local names, with translations.

A brief summary (in distinctive type) of the status of the species.

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ZOOLOGISTS OF NORTH WALES.

The following Biographies are additional to those appearing in *The Vertebrate Fauna of North Wales.*

SMITH.—1823-1888.

Henry Ecroyd Smith was born at Doncaster, 28th August, 1823, and died at Middleham, Yorks, in 1888. He went to Victoria in 1852, but appears to have lived the greater part of his later years in the neighbourhood of Liverpool. He contributed to the *Flora of Liverpool,* 1872, and wrote various papers and local natural history notes for local periodicals. In the *Liverpool Naturalists' Journal*, 1866, he published a paper entitled " A day among the Bird Breeders at the Point of Air," in which he records the Lesser Tern, nesting there, and mentions having found it the previous year at the east end of the Menai Straits. Other species found breeding at Point of Air were the Ringed Plover, Oyster Catcher, Sheld Duck, and Stock Dove.

MOORE.—1824-1892.

Thomas John Moore was born in London in 1824. His father was a Norfolk man, but got an appointment on the staff of the Zoological Society, so that from his earliest years the son was able to study animals, alive and dead, his love of natural history growing as years went by. In 1843 he was appointed as assistant in the care of Lord Derby's menagerie and aviary at Knowsley. On the death of that nobleman in 1851 the collection of stuffed specimens was transferred to Liverpool and the public museum founded, T. J. Moore being its first curator, a post which he filled with conspicuous ability for more than 40 years. His work was mainly practical and his literary contributions rather scanty. His most important paper was a Report on the Seals and Whales of the Liverpool district, published by the Liverpool Marine Biological Committee in 1889. Besides this he contributed various short notes and records of species new to the district to the *Naturalists' Scrap Book* and other local periodicals. With regard to North Wales, the only portion of the Fauna he affected was the Whales and Fishes of the Dee Estuary, his records being referred to in the present volume

under the various species. Moore was a C.M.Z.S., and late in his life was elected A.L.S. He died 31st October, 1892.

MEREDITH.—1847-1910.

Rev. John Blunt Meredith, son of Rev. Edward Meredith, Rector of Longden-on-Tern, was born at that place 19th January, 1847. He was educated at Newport Grammar School and St. John's College, Oxford, ordained deacon, 1871, and priest, 1872. After holding two curacies he was appointed to the living of Kinnerley, which he occupied up to the time of his death, 20th July, 1910. His kindly disposition, and the keen interest he took in the affairs of his parishioners, as well as his eloquence as a preacher, endeared him to all his neighbours. He was an excellent musician and composed many hymn-tunes and chants. Throughout his life he was an enthusiastic naturalist, especially devoting himself to ornithology, whilst he was also very fond of fishing. He frequently corresponded with me in regard to the vertebrates of Shropshire and North Wales—Kinnerley is close to the Welsh Border—and many of his records will be found in the " Faunas " of both districts.

FEILDEN.—1847-1910.

Frank T. Feilden was the fourth son of Rev. H. J. Feilden, rector of Langley, Derbyshire, where he was born. He and his brothers were all fond of natural history, especially ornithology, and Frank took lessons in taxidermy from Cooke of Derby. He was educated at Radley. Frank and his brother, the late Colonel Robert Feilden, started farming at Coxbench, near Derby, and after their father's death they settled down together at Borth about 1890, devoting their time chiefly to hunting, fishing, and shooting. Frank made a special study of the birds of the Dovey Estuary, many of the species he obtained and preserved being of some rarity. He was a fair artist and a good mechanic, making and painting the cases in which he mounted his birds. The *Fauna of North Wales* contains many of his records, amongst which may be mentioned local examples of the Kite, Black-throated Diver, and many of the rarer species of waders and sea-fowl. He built himself a punt in which he often used to go out shooting on the estuary. On the 1st March, 1910, a very rough day, he went out thus, but never returned. The punt was washed up at Aberdovey and his body was found in the estuary. He had lately been subject to attacks of giddiness, and it is supposed that he was upset by the waves, and the coldness of the water brought on an attack, for it was not deep where he was found, and he was

a good swimmer. He was in his sixty-third year, having been born July 29th, 1847.

RUDDY.—1842-1912.

Thomas Ruddy was born in 1842, and was brought up near Jedburgh in Scotland. He was an expert landscape gardener, and in 1869 was engaged to lay out the Palè grounds for the father of the present owner, Sir Henry B. Robertson, remaining there until age and infirmity caused his retirement, when he went to reside at Llangollen. Ruddy was an all-round naturalist, being a first rate botanist and ornithologist, while in geology he was a specialist in the fossils of the Bala Beds, of which he had a magnificent collection. His was a most genial and lovable personality, and the writer enjoyed the privilege of his friendship for many years. Scattered through the pages of the *Fauna of N. Wales* are numerous records and observations from his pen. He passed away peacefully in his chair, 7th April, 1912.

CORRIGENDA TO *THE VERTEBRATE FAUNA OF NORTH WALES.*

P. xxviii., lines 3 and 13, for "Lewis Morris" read "William Morris."

xxx., line 21, for "Calvinistic" read "Congregational."

liii., ,, 16, for "351" (first column) read "51."

lviii., ,, 1, for "Lleyn" read "Llyn."

lxvi., ,, 13, for "electric" read "Wells."

35, ,, 13, for "Wenci" read "Gwenci."

44, ,, 19, Add. "Llygoden Goch = Red Mouse (St. Asaph)."

59, ,, 5, for "III. 59" read "III. 69."

59, ,, 11, Omit "Kinmel (Mostyn)."

60, ,, 6, for "Priestly" read "Priestley."

64, ,, 8, for "1888" read "1883."

65, ,, 5, for "a specimen" read "an adult male."

67, ,, 4, for "twenty-two" read "twenty-one."

68, ,, 5, for "Drycin" read "Ddrycin."

78, ,, 2, for "Llanderfel" read "Llandderfel."

82, ,, 15, "on the Merionethshire side of the Traeth."

91, ,, 28, for "Helig" read "Helyg."

93, ,, 4, Add. "Dryw wen = White Wren (Carnarvon)."

93, ,, 25, Omit "on Sealand."

97, ,, 3, for "Lwyd yr Hesg" read "Llwyd yr Hesg."

114, ,, 24, Transfer "(Cummings)" to line 27 after "them."

118, ,, 23, The Cerrig-y-druidion record should be under Denbighshire.

145, ,, 1, for "Palè" read "Glyndwfrdwy."

167, ,, 3, for "Douglas H. Meares" read "C. Stanley Meares."

185, ,, 9, for "Milfran" read "Mulfran."

185, ,, 10, for "Syddyn" read "Tyddyn."

192, ,, 3, for "in 1904" read "5th June, 1903."

198, ,, 32, Omit "one shot Heswall on Dee Estuary (V. Wilson)."

222, ,, 17, should read "The Buzzard never rears two broods in a year but."

222, ,, 36, for "a month" read "six weeks."

P. 225, line 25, for "1897, three Buzzards" read "1895, three Ravens."
231, ,, 17, for "E. T. Williams" read "E. J. Williams."
232, ,, 23, for "Cardiganshire in 1894" read "Breconshire in 1893."
237, ,, 21, for "not even a hollow" read "only a slight hollow."
252, ,, 27, for "Denbigh" read "Denbigh and Flint."
259, ,, 34, for "1901" read "1904."
271, ,, 22, for "recorded" read "obtained."
273, ,, 25, for "1870 (*Field* . . . 1871)" read "1869 (*Field* . . . 1870."
289, ,, 7, for "Talacre near Corwen" read "Talacre and near Corwen."
291, ,, 16, for "October" read "November."
301, ,, 30, for "Harwood" read "Horwood."
313, ,, 33, for 28th December, 1879" read "3rd January, 1880."
342, ,, 33, for J. W. Greaves" read "J. E. Greaves."
353, ,, 2, Omit "Myniar Goesgoch = Red-legged Snipe."
355, ,, 3, for "1891" read "1841."
372, ,, 26 Omit "and Mr. Victor . . . . . November 1890."
404, ,, 5 for "155" read "153."
504, ,, 15 The Dwyfor River record should be under Carnarvonshire.

EXTINCT MAMMALS.

The following species have been identified from remains in limestone caverns in Denbigh and Flint :—Dog, Fox, Wolf, Brown Bear, Grizzly Bear, Cave Bear, Badger, Glutton, *Lynx, Spotted Hyena, Cave Lion, Wild Cat, *Marten, Rabbit, Hare, Mammoth, Rhinoceros, Hippopotamus, Horse, Wild Boar, Red Deer, Roe Deer, Reindeer, "Irish Elk," Goat, European Bison, *Bos primigenius*, and *Bos longifrons*. *The Lynx and Marten have been found only in a cave near Prestatyn known as the Gop, explored recently by Mr. J. H. Morris. No actual remains of the Beaver have been found in North Wales, though it is said traditionally to have existed here up to the sixth century.

Mammoth.—Pennant, in his *History of Quadrupeds*, 1793, p. 172, writes of the Elephant :—"Some years ago two great grinding teeth, and part of the tusks of an Elephant, were given me by some miners who discovered them at the depth of forty-two yards in a lead mine in Flintshire ; one of the strata above them was lime-stone, about eight yards thick ; the teeth were found in a bed of gravel in the mine ; the grinders were almost as perfect as if just taken from the animal ; the tusk much decayed, soft, and exfoliating. A Stag's horn was found with them." It seems most probable that these remains were those of a Mammoth, and had fallen into a limestone fissure or cavity which had subsequently become filled with glacial gravel. A Mammoth tusk was dug up near Portmadoc when the railway was being made.

Cefn Caves.—On p. 313, *Records of the Rocks*, Rev. W. S. Symonds gives an account of the Cefn Caves, which he says were an old coastline, as they bear evident signs of wave action, and in some of the highest pot-holes contained marl and detritus with fragments of marine shells and corallines. He adds that "the cave earth which once nearly filled the caves was so full of animal remains that it was carted away for manure, a few only of the relics of Bears, Hyenas, and Hippopotami being preserved by Dr. Falconer and Mrs. Williams Wynn, the owner of the caves. Dr. Falconer also found sea-shells below the remains of the cave animals."

Vaynol Cattle.—Mr. J. Whitaker informs me that the Vaynol Cattle are not pure bred, but that Sir John Orde put

a pure bull to white Highland cows, whilst later on the progeny had another cross with Cadzow cattle. The herd is therefore three-quarter bred park cattle and one-quarter Highland. The first bull was from Athol, the second from Lord Breadalbane's —both used while the herd was at Kilmory. Mr. L. F. Lort tells me that the Cadzow bull was not introduced until 1896, long after the herd came to Vaynol. In the review of the *Fauna* in the *Field*, it is stated that the Cadzow bull was used at Kilmory, but in this the reviewer was mistaken. The Highland ancestry is still betrayed by a certain shagginess about the forehead.

Goat.—In *Country Life*, mid-March, 1901, is a fine drawing by Mr. Lionel Edwards of a flock of Wild Goats on the snow-clad slopes of Moel Wyn. The writer of the accompanying article states that there are herds of perfectly Wild Goats also on other parts of the range, and on Rhinog-fawr and a head-land on the bounds of Pembroke and Cardiganshire, whilst there used to be one on the Tremadoc rocks. The South Wales herd, though not large, is of immemorial antiquity. Absolute purity can hardly be claimed for the Moel Wyn herd, as some fresh blood may have been obtained from Irish herds that used to be driven through Wales for sale, but this practice is not observed now, nor has it been for many years past. Still it has quite "as much claim to purity and wildness as the Chillingham cattle. Rough, shaggy, long-horned, they are very shy, frequenting the most inaccessible parts of the mountains, and are seldom seen except when driven by stress of weather to the lower slopes. Sometimes the mountain-farmers organise a goat hunt, running the animals down with sheep-dogs, and then throwing a sack over their heads and dragging them into captivity." Pennant, in his *History of Quadrupeds*, 1793, p. 60, mentions that he had a pair of horns from a Welsh he-goat which measured three feet five inches long, and three feet two inches between tip and tip.

MAMMALS.

1.—NOCTULE. *Nyctalus noctula* (Schreber).

Generally distributed in the lowlands where wooded.

Pennant mentions (*Hist. Quadr.*, II., 317) one of these bats "caught during winter in Flintshire." Mr. Ruddy observed one flying abroad about mid-day in Llangollen, 9th June, 1907; and again 30th December, 1911—a remarkable date. I found the Noctule common about Welshpool and St. Asaph; whilst Mr. G. Bolam describes it as occurring, though not numerous, round Bala Lake.

2.—PIPISTRELLE, OR COMMON BAT. *Pipistrellus pipistrellus* (Schreber).

Probably common throughout the district though seldom actually identified.

This bat has been obtained at Llangollen, where also it was seen abroad 28th November, and 20th December, 1909, and 13th January, 1910.

3.—NATTERER'S OR REDDISH-GREY BAT. *Myotis nattereri* (Kuhl).

Common round Harlech; recorded also in Denbighshire.

4.—DAUBENTON'S BAT. *Myotis daubentoni* (Kuhl).

Occurs probably in all counties, but has not been recorded in Anglesey.

Mr. G. Bolam found it common round Bala Lake, and Mr. C. Oldham observed a few on a pool in the river at Mallwyd, 28th September, 1913. Mr. J. R. B. Masefield also found it common at Llanfairfechan.

5.—WHISKERED BAT. *Myotis mystacinus* (Kuhl).

Very numerous in Merioneth and neighbouring part of Carnarvonshire; found also in Denbighshire: not recorded elsewhere.

Although not actually obtained in Montgomeryshire, I have received this bat from West Felton, Shropshire, only a few miles over the border. A bat observed at Llangollen by Mr. G. M. Furley, 4th May, 1919, was probably of this species.

6.—LONG-EARED BAT. *Plecotus auritus* (Linn.).

Generally distributed, and common in many places.

7.—GREATER HORSE-SHOE BAT. *Rhinolophus ferrum-equinum* (Schreber).

Has occurred two or three times in Merioneth.

In his *Wild Life in Wales*, p. 317, Mr. G. Bolam records seeing on 12th July, 1906, a " very large bat near the head of Bala Lake close to him, skimming low over the water with a remarkably slow, heavy flight. It appeared much larger than any Noctule." There can be little doubt that this was a Greater Horse-shoe Bat.

8.—LESSER HORSE-SHOE BAT. *Rhinolophus hipposideros* (Bechstein).

Numerous in certain parts of Denbigh and Flint; occurs also in Carnarvon and Merioneth.

On 10th December, 1908, I received for identification a bat of this species, taken with another by Mr. Douglas Witty from a small cave on Pabo Hill near Conway.

9.—HEDGEHOG. *Erinaceus europœus* Linn.

Common everywhere.

10.—MOLE. *Talpa europœa* Linn.

Common everywhere, even high up on the moors.

In March, 1908, I received from Berriew, Montgomery, two moles of a smoky yellow colour: each hair was yellow or apricot colour with a dusky tip. One of these is now in the National Museum of Wales, Cardiff.

11.—COMMON SHREW. *Sorex araneus* Linn.

Generally distributed and plentiful in lowlands; scarce at higher levels.

12.—LESSER OR PIGMY SHREW. *Sorex minutus* Linn.

Not very uncommon in the west ; rare or overlooked in the east.

On 5th February, 1911, one was taken at Plas Power, Wrexham, and sent to me by Mr. Godfrey Fitz-Hugh. About the same time and subsequently several were caught in traps baited with cheese set in his greenhouse on the Little Orme's Head by Mr. G. A. Hutchinson, who sent me skins. The species appears to be fairly common round Llandudno. In 1906 Mr. G. Bolam saw one killed and dropped by a Kestrel on Aran near Bala ; while in the same district Mr. C. Oldham found one dead on the road at Llanuwchllyn, 28th September, 1913 ; another at Llanfihangel Pennant, 2nd October, 1913 ; a third at Carrog near Corwen, 19th September, 1915 ; and a fourth at Llanwnda, Carnarvonshire, 23rd July, 1916.

13.—WATER SHREW. *Neomys fodiens* (Schreber).

Generally distributed in lowlands.

Several specimens were caught by Mr. Hutchinson in the same manner as the Lesser Shrews mentioned above. Mr. Ruddy caught one in the pantry of his house at Llangollen 17th December, 1909, in a mouse-trap baited with bread. Dr. R. Newstead found the remains of fifteen in pellets of the Tawny Owl from Colomedy, Mold, in May, 1902.

WILD CAT. *Felis sylvestris* Schreb.

Extinct, except for hybrid descendants with the domestic cat.

Entries of rewards for killing Wild Cats, Polecats, and Foxes occur in the Vestry Book of Llanyblodwel, 1720 to 1825. (*Mont. Collections*, 1906.)

14.—FOX *Vulpes vulpes* (Linn.).

Generally distributed, except in Anglesey, where it is not indigenous.

Mr. G. J. Williams writes that in 1815 the Ffestiniog Vestry used to pay 20s. for every Fox, and 10s. for every cub. In 1817 the prices were 10s. a Fox, and 5s. each cub, and each that was killed was to be hung from one of the yews in the churchyard, or in some conspicuous place in the village.

In 1849 for a Fox 10s. a cub 5s.
,, 1851 ,, ,, ,, 15s. ,, ,, 7s. 6d.
,, 1852 ,, ,, ,, 20s. ,, ,, 10s.
,, 1863 ,, ,, ,, 10s. ,, ,, 5s.

Up to 1863 this money was paid from the Treth Eglwys (Church Rate), but since then from tolls taken at the Market Hall. In 1866 it was resolved that no payment should be made for killing a Fox without the evidence of some respectable person that the beast had been killed in the Parish of Ffestiniog. Mr. W. R. Rogers informs me that a remarkably fine old dog-fox killed near St. Asaph in 1906 and weighed by a local butcher scaled 22¾ lbs.

WOLF. *Canis lupus.* Linn.

Extinct; probably since the beginning of the 17th century.

Giraldus Cambrensis in his *Itinerary* writes of Wolves as preying on the dead bodies of the slain in the neighbourhood of Coleshill, near Holywell, when Henry II. made one of his expeditions into North Wales in 1165. Pennant quotes this in his *Tour*, as also does Bingley. An amusing instance of survival of tradition is afforded by a paper in the *Nationalist* of September, 1908. The writer mentions a cave on the side of Cader Idris towards Arthog "where the last Wolf in Wales was killed when George III. was king."

BEAR. *Ursus arctos* Linn.

Extinct; probably quite a thousand years ago.

15.—PINE MARTEN. *Martes martes* (Linn.).

Still found in the wilder parts of Carnarvon and Merioneth; occurs elsewhere as a wanderer.

With regard to the colour of the young, Mr. A. Heneage Cocks has found by observation of examples bred in confinement that they are white at first.

An excellent descriptive account of hunting the Marten in Wales by "Geoffrey Mortimer" appeared in the *Field* 7th December, 1901. Unlike the Stoat or Weasel which attack the throat or neck, the Marten kills its prey by a bite just over the heart (cf. *Zoologist*, 1908, 2).

I am indebted to Mr. Rhys P. Allaway for the following observations on the habits of this animal. The tenant of a farm close to Cwm Bychan had a domestic cat with four kittens in an outhouse: the kittens disappeared one after the other till only one remained: he then set a trap to catch the thief, and to his surprise next morning found it occupied by a Marten. An old local keeper told him that when the Marten either

winds or sees a Grouse in the snow, it stamps on the snow to harden it, and so obtains a firm spot to spring from, and it very rarely fails to catch its prey. He adds that about Cwm Bychan farmers often track them in the snow; a young one was taken there 18th May, 1907.

Among recent occurrences in Carnarvonshire are a female obtained by Mr. F. Cobden at Capel Curig in April, 1909; one trapped at the lighthouse on the Great Orme's Head (where it seems to have gone in search of the poultry) June 6th, 1910; and a male trapped near Trefriw, February 22nd, 1911. One was trapped on Moel Siabod in 1910, and another at Beddgelert in January, 1913. Mr. G. Bolam states that at least six were trapped in the Bala and Dolgelley district between 1905 and 1907.

16.—POLECAT. *Mustela putorius* Linn.

Almost extinct in the east and Anglesey; not uncommon in parts of Carnarvon and Merioneth.

17.—STOAT. *Mustela erminea stabilis* Barrett-Hamilton.

Generally distributed and common.

Pennant in his *History of Quadrupeds* mentions seeing "two most perfect and beautiful Ermines" in his grounds at Mostyn in February, 1780. In the *Field* (27th February, 1915), Mr. V. F. Wynne Eyton of Mold, describes a Stoat's larder in a Woodpecker's hole over twenty feet from the ground in a dead oak-tree. It contained a recently-killed hen Blackbird.

18.—WEASEL. *Mustela nivalis* Linn.

Generally distributed and common.

19.—BADGER *Meles meles* (Linn.).

Fairly common in the east; rarer in the west; unknown in Lleyn; occurs only near Menai Bridge in Anglesey.

Of three caught at Llanidloes in November, 1911, one was of the curious erythristic variety of which several examples have been obtained in Shropshire, though this appears to be the only occurrence recorded in Wales.

20.—OTTER. *Lutra lutra* (Linn.).

Generally distributed in the lowlands, and more or less common in all counties.

21.—COMMON SEAL. *Phoca vitulina* Linn.

Occasional winter visitor to the coasts.

22.—GREY SEAL. *Halichœrus grypus* Fabr.

Resident on some of the western islands; visits the estuaries.

There has evidently been some confusion between this species and the last by observers, and from many enquiries I have come to the conclusion that the Grey Seal is the only species resident and breeding in North Wales, though the Common Seal is a not infrequent winter visitor. The Seals reported off the coast of Lleyn by Col. Wynne Finch and Mr. O. V. Aplin were almost certainly Grey Seals. Mr. A. Heneage Cocks also tells me that this is the only species he has observed on that coast. In August, 1907, four were seen basking in Porth Ceiriad by Mr. W. W. Cobb. The Seal reported below Chester, November 11th, 1905, was a Grey Seal (*Zoologist*, 1911, 111), as also were individuals seen in the Dovey by Dr. Seymour Jackson, July 9th and October 8th, 1909; in the Menai Straits by Mr. L. F. Lort, February 7th, 1909; and below the South Stack Lighthouse by Messrs. Steele Elliott and C. Oldham, June 24th, 1910.

On the other hand, examples of the Common Seal are recorded in the Dee estuary by Coward (*Vert. Fauna Cheshire*, 1, 42) in December, 1891, winter of 1893-4, November 10th, 1907, and August 12th, 1908—this last an early date. Mr. R. W. Jones also saw one in Llandudno Bay, November 4th, 1907.

During a visit to Bardsey in August, 1902, Mr. W. W. Cobb learnt from one of the lighthousemen that Seals were fairly abundant on the island and lived all the year round in Ogof rhuna. A native named Love Pritchard caught a young one in a cave not long before, and kept it alive for some time. These would probably be Grey Seals. The species is known to breed on Lambay, an island off the coast of Dublin. (See *Handbook* to the Dublin district prepared for the *Brit. Association* Meeting 1908, p. 111., and Plate VIII.—photos of the young.)

Mr. O. V. Aplin writes in the *Zoologist*, 1910, 106 :—"The Bardsey men have told me that in cold weather about Christmas, when they are crossing, they hear the Seals making a great noise round the islands 'crying like children.'"

A young Grey Seal was stranded off Hoylake on the 28th October, 1909, and sent alive to Liverpool Museum. For description see Coward, *Fauna, Cheshire*, I., 46. It is described as very noisy, barking loudly for food.

Mr. C. Oldham saw a Grey Seal in Afonwen Bay, 31st August, 1914. It showed a good deal of curiosity, turning its head

when he whistled or shouted. It was at approximately the same spot during the hour and a half that he was on the beach, and sometimes its head was protruded above the water for a quarter of an hour at a stretch.

Pennant in *History of Quadrupeds* describes and figures a "Pied Seal" taken at Chester in May, 1766: it was bare of hair except on the head. This was probably a diseased Grey Seal. Pennant also writes in *British Zoology*, quoting Rev. — Farrington, of Dinas, Carnarvonshire :—"Seals are found most frequently between Lleyn and the northern parts of Anglesey: they are seen often towards Carreg-y-moelrhon to the west of Bardsey, and on the Skerries. They are excellent swimmers and ready divers, and are very bold when in the sea, swimming carelessly enough about boats. Their dens are in hollow rocks or caverns near the sea but out of reach of the tide. In the summer they will come out of the water to bask or sleep in the sun on the top of large stones or shivers of rocks, and that is the opportunity our countrymen take of shooting them. If they chance to escape they hasten towards their proper element, flinging stones and dirt behind them as they scramble along; at the same time expressing their fears by piteous moans; but if they happen to be overtaken they will make a vigorous defence with their feet and teeth till they are killed. They are taken for the sake of their skins and for the oil their fat yields: the former sell for 4s. and 4s. 6d. apiece, and, when dressed, are very useful in covering trunks, making waistcoats, shot-pouches," etc. Pennant further refers to Seals on the coast of Cornwall, quoting a letter from Rev. Dr. Wm. Borlase dated 24th October, 1763, describing them as most plentiful there in May, June and July, and as varying in size from "as large as a cow and from that downwards to a small calf." Throughout Pennant's account the Grey Seal and Common Seal are confused together.

23.—SQUIRREL. *Sciurus vulgaris* (Linn.).

Common in wooded districts up to a moderate elevation.

24.—DORMOUSE. *Muscardinus avellanarius* Linn.

Generally distributed; common in the east; rare in the west.

BLACK RAT. *Epimys rattus* (Linn.).

Formerly found in the west, but probably now extinct.

Pennant, in his *History of Quadrupeds*, writes :—"The Welsh call this Llygoden Frengig or the French Mouse, which evinces

it not to be a native of our island." He also mentions that at the time of writing (1793), the Brown Rat had "destroyed the Common Black Rat in most places."

"SMALL RED RAT OF ANGLESEY." There is a strong probability that this rat is identical with the rufous form of *E. rattus* found on Lundy Island in 1907 by Messrs. Coward and Oldham. See *Zoologist*, 1907.

25.—BROWN, OR COMMON RAT. *Epimys norvegicus* Berkenhout.

Common throughout the district.

See under Puffin.

26.—COMMON, OR HOUSE MOUSE. *Mus musculus* Linn.

Very common.

HARVEST MOUSE. *Micromys minutus* Pallas.

Reported in various scattered localities, but no certain record.

27.—WOOD MOUSE, OR LONG-TAILED FIELD MOUSE. *Apodemus sylvaticus* (Linn.).

Common and generally distributed.

28.—WATER VOLE, OR WATER RAT. *Arvicola amphibius* (Linn.).

Common by water throughout the district up to a moderate elevation.

29.—FIELD VOLE, OR SHORT-TAILED FIELD MOUSE. *Microtus hirtus* (Bellamy).

Common throughout the district.

30.—BANK VOLE, OR RED FIELD VOLE. *Evotomys glareolus* (Schreb.).

Generally distributed.

In May, 1910, I saw several caught in Mr. L. F. Lort's garden at Menai Bridge, Anglesey, in which the underparts were very dusky, as in those taken round Bangor on the opposite side of the Straits.

31.—COMMON HARE. *Lepus europæus* Pallas.

Generally distributed but not common everywhere.

32.—MOUNTAIN HARE. *Lepus timidus* Linn.

An introduced species; common on some mountains.

The hares in the Snowdon district turned down by Lord Penrhyn were brought from the property of Captain Dewar, adjoining the Drummond Castle estate near Crieff. In March, 1910, Mr. Harold King observed several in the white coat on Moel-y-Ci and the slopes of Carnedd Dafydd.

33.—RABBIT. *Oryctolagus cuniculus* (Linn.).

Common everywhere.

There are white wild Rabbits on Penmon and Newborough warrens, Anglesey.

RED DEER. *Cervus elaphus* Linn.

Semi-domesticated in certain parks; survived in the wild state till the eighteenth century.

Several very large skulls and antlers were found along the foreshore in the Barmouth district in 1912-14. In 1913 a skull and parts of skeleton were found at Towyn. Bingley in his *Tour* I., 199, writes of Snowdonia: —"These mountains formerly abounded in deer, which even continued in great quantities till much later than the reign of Henry VIII., but after the use of firearms became general they were soon all destroyed." Pennant, too, writes of this same district (*Tour*, II., 341) "Stags were found here in the days of Leland in such numbers as to destroy the little corn which the farmers attempted to sow, but they were extirpated before 1626."

34.—FALLOW DEER. *Dama dama* (Linn.).

Not indigenous: kept semi-domesticated in parks.

Pennant, in *British Zoology*, gives the Welsh name as Gafr-danas=Danish Goat, and says that the Fallow Deer were introduced from Norway by James I. when he visited his intended bride, Mary of Denmark. This was probably mere fancy on his part In his *Tour*, II., 250, he mentions that

" the Park of Nannau is remarkable for its very small but very excellent venison." Giraldus Cambrensis in his *Itinerary* states that he saw at Chester " what appeared novel to us, cheese made of deer's milk ; for the countess and her mother keeping tame deer, presented to the Archbishop three small cheeses made from their milk." The deer would no doubt be Fallow Deer.

ROE DEER. *Capreolus capreolus* (Linn.).

Appears to have become extinct long ago.

Pennant, in *British Zoology*, states that the Roebuck " was formerly very common in Wales," and in his *Tour*, II., 280, adds that the Roe " was hunted with hounds or greyhounds which were held in leashes and let slip at the animal." Leland refers to the Roe and Red Deer as common early in the 16th century on Clun Forest, which is partly in Montgomeryshire In the laws of Howell the Good the Roe is valued at the same as a she-goat.

35.—BOTTLE-NOSE WHALE. *Hyperoodon rostratus* Mull

Occurs from time to time on the coast—most frequently in the north.

A small female, 17 feet long, was stranded at Mostyn, 27th September, 1907.

36.—PORPOISE. *Phocæna communis* Linn.

Common off all coasts.

A porpoise weighing about 100 lbs. was caught at Colwyn Bay, 10th July, 1909.

37.—WHITE-BEAKED DOLPHIN. *Lagenorhynchus albirostris* Gray.

Obtained once in the Dee estuary in 1862.

38.—GRAMPUS. *Grampus griseus* Cuv.

Rare : has occurred off Anglesey and Lleyn and in the Dee estuary.

Dr. J. Travis Jenkins, on board the Fishery Yacht off Aberdaron Bay, passed close to a fine specimen swimming towards Bardsey

Island. The tall, sharply-pointed back fin situated in the middle of the dorsal surface was unmistakable. There were lots of Mackerel about at the time. Mr. J. A. Dockray found one in 1899 in the Dee estuary between Heswall and Thurstaston; it was about nine feet long and had been dead several days.

39.—DOLPHIN. *Delphinus delphis* Linn.

Of rare and irregular occurrence.

40.—BOTTLE-NOSED DOLPHIN. *Tursiops truncatus* (Mont.).

Several occurrences in the west.

41.—COMMON RORQUAL. *Balœnoptera physalus* Linn.

Recorded once.

Bell in *British Quadrupeds*, page 401, states that a young Rorqual taken on the coast of Wales in 1846 was described by Dr. Gray as *Benedenia knoxii*, but since determined to be of this species. The skeleton is in the British Museum, and Flower's list of Cetacea states that it was "towed into Liverpool," so that the animal was probably taken off North Wales.

42.—LESSER RORQUAL. *Balœnoptera acutirostrata* Lacep.

Recorded once.

The decomposed body of one twenty-eight feet long came ashore near Aberystwyth, 22nd September, 1910.

43.—SIBBALD'S RORQUAL. *Balœnoptera sibbaldii*. Gray.

Recorded once.

In September, 1918, I noted in the shop of Mr. Davies, fishmonger, Barmouth, a single lumbar vertebra, which he informed me had been cast up by the sea there. It measured thirteen inches across the disc and nine inches along the upper process. From its size it can only have belonged to this, the largest of all existing animals. The species has not, I believe, been previously met with in Welsh waters.

BIRDS.

1.—MISTLE THRUSH. *Turdus viscivorus viscivorus.* L.

Generally distributed, excepting in very mountainous districts.

Dr. N. F. Ticehurst noted six or eight in June, 1913, at the extremity of Lleyn—as far west as they could range in Wales.

2.—SONG THRUSH. *Turdus philomelus clarkei* Hart.

Common in all suitable parts of the country: leaves the uplands in winter.

3.—REDWING. *Turdus musicus* L.

Winter migrant, common in lowlands, especially on the coast.

Mr. S. G. Cummings has several times seen Redwings on Sealand in April.

4.—FIELDFARE. *Turdus pilaris* L.

Winter migrant, common in lowlands, most numerous inland.

In 1910 one was killed at the Skerries light during the night of 9–10th May—a remarkably late date.

5.—BLACKBIRD *Turdus merula merula L.*

Plentiful everywhere, even on mountain sides and some islands.

6.—RING OUZEL. *Turdus torquatus torquatus* L.

Summer migrant, common on moors and mountains: almost unknown in Anglesey.

Mr. H. King states that for a short time after their arrival Ring Ouzels are very numerous on the heathery slopes in the lower part of Nant Francon: as the spring advances they disperse and then frequent its more rocky parts. Mr. C. Oldham found the Ring Ouzel remarkably scarce round Beddgelert: during a week's stay in June, 1914, he saw only two—both near the summit of Snowdon. During a heavy snow-

storm on 19th February, 1905, Mr. G. Bolam met with a party of five Ring Ouzels near the top of Aran—a remarkable date.

7.—WHEATEAR. *Œnanthe œnanthe œnanthe* (L.).

Summer migrant, arriving in March; common on downs round the coast, and on warrens and stony hillsides inland.

Pennant in his *Tour* II., 349, mentions having met with the Wheatear by Ffynnon Làs on Snowdon, this and the Ring Ouzel being the only small birds that frequent these heights. He appears to have forgotten the Meadow Pipit, which far outnumbers the Wheatear.

The large race (*Œnanthe œnanthe leucorrhoa*) has been noted on migration in April near Aberystwyth by Professor Salter, who remarks that it perches more freely on furze-bushes than the smaller race. Amongst several Wheatears killed at Bardsey lighthouse 14–15th August, 1909, was "one at least of the Greenland race, which would seem to be an unusually early record" for the autumnal migration. (*B.O.C. Migration Report*, p. 206.) In 1912 the Wheatear was noted on the Great Orme's Head by Mr. R. W. Jones as early as the 1st and 2nd March. In 1913 migration lasted from March 21st to May 9th, the largest numbers being recorded at the Welsh lighthouses in the last half of April. Dr. N. F. Ticehurst records that numbers passed Bardsey on migration in September, 1913, including many of the larger race.

8.—WHINCHAT. *Saxicola rubetra rubetra* (L.).

Summer migrant, generally distributed and common in parts; not numerous in Anglesey.

In Anglesey Mr. H. King observed a pair at Llanddona in August, 1910. In Carnarvonshire the Whinchat breeds sparingly in the Snowdon district, but is more abundant in Merioneth on the Rhinog Range and the northern slopes of Cader Idris. The stomach of one from Prestatyn examined by Dr. R. Newstead in May, 1894, contained many small spiders, an earwig, weevil and five beetles.

9.—STONECHAT. *Saxicola torquata hibernans* (Hart.).

Partial migrant; most numerous near the coast, especially in Anglesey where it is extremely common.

The latter half of the bottom paragraph on page 79 of the *Fauna* should read as follows :—" Even when unaware of a watcher the

bird never goes direct to the nest, but approaches it by a series of short. irregular flights, finally dropping into the herbage and running to the nest unseen." Mr. R. W. Jones has noticed that at Llandudno local birds are reinforced in the spring. Several observers have met with the Stonechat on Bardsey in summer and autumn.

10.—REDSTART. *Phœnicurus phœnicurus phœnicurus* (L.).

Summer migrant, somewhat local but common in most wooded districts; rare in Anglesey and not recorded in Lleyn.

Additional Anglesey record:—a male north of Menai Bridge, 10th May, 1911 (H. King).

11.—BLACK REDSTART. *Phœnicurus ochrurus gibraltariensis* (Gm.).

Regular visitor to the coast in small numbers.

Several additional occurrences have been recorded, and it seems probable that this species regularly passes through North Wales on migration in very small numbers, though it appears to keep always to the coast. On the Great Orme's Head Mr. R. W. Jones observed a female, 27th December, 1910; another, 23rd November, 1911; a male, 1st March, 1912; an immature male, 2nd November, 1912, and two, 7th February, 1914. Messrs. Coward and Oldham noted a male at Holyhead on 15th and 18th October, 1912, and a female near the South Stack, 22nd October, 1912. In the *B.O.C. Migration Report*, one is recorded in the Conway Estuary, 24th March, 1913, and one at the Skerries, 13–14th October, 1912. In the *Zoologist*, 1914, p. 148, are records of one at Llandudno, 10th January, and another at Valley on the 14th. Mr. F. C. Rawlings sent me for identification the skin of a female which he shot at Barmouth, 13th December, 1915. Just beyond our district Mr. Frank S. Wright caught a female at the botanical laboratory, University College, Aberystwyth, 19th November, 1916, while Professor Salter tells me that he knows of one or two other occurrences there besides those recorded in the *Vert. Fauna N. Wales*.

12.—REDBREAST. *Erithacus rubecula melophilus* Hart.

Plentiful everywhere except on very elevated land.

A white Robin haunted certain gardens in Newtown (Mont.) for several months in 1909.

13.—NIGHTINGALE. *Luscinia megarhyncha megarhyncha* Brehm.

Summer migrant; rare. Occurs irregularly on the English border; not authenticated elsewhere.

14.—WHITETHROAT. *Sylvia communis communis* Lath.

Summer migrant; common and generally distributed.

15.—LESSER WHITETHROAT. *Sylvia curruca curruca* (L.).

Summer migrant; fairly common in the eastern, but rare in the western half of the district.

The following are additional records: In Anglesey one was seen in Red Wharf Bay, 17th May, 1914, by Mr. R. W. Jones; a pair with young out of the nest near Holland Arms in June, 1915, and one singing near Ceint Station, 21st June, 1916, noted by Mr. C. Oldham; several in Red Wharf Bay observed by Mr. S. G. Cummings in 1917 and 1918; he also noted two pairs at Wern in 1917. In Carnarvonshire Mr. T. A. Coward heard five in one day in May, 1910, near Llandudno, while the same year Mr. T. Owen found a nest and eggs near Bangor. In 1917 Mr. R. W. Jones heard one repeatedly at Bangor during June and July. In Flintshire Thomas Mather wrote in the *Liverpool Naturalists' Journal*, 1866-7, that it "had been more common during the last four or five years than in the previous ten." There is no doubt that here, as in Shropshire, the numbers vary from year to year. Mr. D. Witty found a nest and eggs at Mochdre, 20th May, 1909. Mr. S. G. Cummings heard one singing at Dolgelley, 20th May, 1912. Its arrival in Merioneth was recorded in the *B.O.C. Migration Report* as early as 14th April, 1913. Mr. H. F. Witherby noted two at Aberdovey in 1915.

16.—BLACKCAP. *Sylvia atricapilla atricapilla* (L.).

Summer migrant, common except in Lleyn, Anglesey, and Llandudno.

In Lleyn Mr. Ellis Davies, gardener at Nanhoron, says that the Blackcap is common in the grounds there. Mr. A. G. Edwards reports that for fully a week during the first half of January, 1906, a female came and fed in his garden at Portmadoc on food put out for the Tits, etc. She was very pugnacious and drove other birds from the food. One struck the lantern at Bardsey lighthouse, 10–11th October, 1912.

17.—GARDEN WARBLER. *Sylvia borin* (Bodd.).

Summer migrant; generally distributed in the southern half of the district; local in the northern half, rare in Anglesey and west Carnarvon.

The following are additional records:—One heard at Red Wharf Bay, Anglesey, 26th May, 1913, by Mr. S. G. Cummings, who also found it more numerous than the Blackcap round Barmouth in 1912. Mr. H. King found a colony in the Aber Valley, Carnarvonshire, in 1909–10, while Mr. R. W. Jones heard it at Llandudno on three occasions in May, 1909. About Llandinam (Mont.) Rev. E. Lorimer Thomas found it numerous in May, 1918. Dr. N. F. Ticehurst records migrants at the Bardsey light at night only, 4-7th September, 1913.

17a.—BARRED WARBLER. *Sylvia nisoria nisoria* (Bechst.).

Recorded once only, in Anglesey.

The *B.O.C. Migration Report*, 1911, 268, records a Barred Warbler killed at the Skerries lighthouse on the night of 10–11th September, 1910. I learn from Dr. N. F. Ticehurst that it was identified by the wing and leg which were sent to him. This is a first record for Wales.

18.—GOLDEN-CRESTED WREN. *Regulus regulus anglorum* (Hart.).

Resident, and common except in north Anglesey: more numerous in winter.

In May, 1913, Mr. W. Glynne Edwards found a nest being built in Llynnon Woods, near Holyhead. Mr. S. G. Cummings states that he has seen the bird in that district during summer on several occasions.

19.—FIRE-CRESTED WREN. *Regulus ignicapillus ignicapillus* (Temm.).

Recorded once at Pwllheli.

20.—CHIFFCHAFF. *Phylloscopus collybita collybita* (Vieill.).

Summer migrant; common, except about Bala and in Lleyn and north Anglesey.

In 1913 Mr. R. W. Jones records a Chiffchaff at Llandudno on 15th February, and repeatedly afterwards until mid-March. Chiffchaffs were reported as wintering in various parts of England that season.

21.—WILLOW WARBLER. *Phylloscopus trochilus trochilus* (L.).

Summer migrant, common in all but very bare localities; the most abundant of the warblers.

In May, 1908, Mr. Ruddy observed a Willow Wren with entirely white tail in his garden at Llangollen. A belated emigrant struck the lighthouse on St. Tudwal's, 10–11th October, 1912. An example of the northern Willow Warbler (*Ph. t. eversmanni*) was taken at the Bardsey light on the 10–11th April, 1913, and several others between the 2nd and 16th September following (N. F. Ticehurst).

22.—WOOD WREN. *Phylloscopus sibilatrix sibilatrix* (Bechst.).

Summer migrant, common in open woods generally, but especially in certain wooded valleys of Merioneth and Carnarvon; in Anglesey common only in the south.

Heard by Mr. S. G. Cummings near Dolgelley 19th April, 1912, and Caerwys 19th April, 1914—an early date.

23.—REED WARBLER. *Acrocephalus scirpaceus scirpaceus* (Herm.).

Summer migrant; very local and rare except on the Cheshire and Shropshire border; not recorded in Anglesey.

The late Mr. C. K. Siddall heard a Reed Warbler at Talacre, 17th August, 1910, while in August, 1911, Mr. H. G. Attlee heard one near Harlech—both new localities.

24.—SEDGE WARBLER. *Acrocephalus schœnobœnus* (L).

Summer migrant, generally distributed in lowlands but somewhat local; numerous in the west.

Six were recorded at the Bardsey lighthouse, 6–7th August, 1912, and two at the Skerries, 16–17th August, 1912.

25.—GRASSHOPPER WARBLER. *Locustella nævia nævia* (Bodd.).

Summer migrant; generally distributed; fairly common on hills inland, less numerous on flats by the coast.

The following are additional records:—Anglesey: one heard Malldraeth, 11th May, 1907, and another north of Beaumaris a week later by Mr. H. King. Carnarvon: Mr. King also found a pair nesting at Llyn-y-parc, Bettws-y-coed, in 1911; Mr. R. W. Jones noted about six round Llandudno in 1907:

Mr. W. W. Cobb heard one at Abersoch in 1909, while the species was recorded at the Bardsey light on 1st and 6th May, 1913. Denbigh and Flint: Dr. C. L. Williams heard one in 1903 at Holywell, where Rev. E. Lorimer Thomas noted two pairs in 1916: Mr. R. Morgan heard and saw one at Llanarmon near Mold, in May, 1910, while Mr. S. G. Cummings heard two at Caerwys, 22nd April, 1914. Dr. N. F. Ticehurst records several at the Bardsey light in September, 1913. One day the keepers cleaned out the foghorns, removing two or three dozen dried bodies of birds: quite a large proportion were Grasshopper Warblers, most of the others being Sedge and Willow Warblers.

26.—HEDGE SPARROW. *Prunella modularis occidentalis* (Hart.).

Resident; common and generally distributed in all suitable districts, even to a considerable elevation on the moors and mountains.

27.—ALPINE ACCENTOR. *Prunella collaris collaris* (Scop.).

Rare visitor, recorded once only, on Snowdon.

28.—DIPPER. *Cinclus cinclus britannicus* Tsch.

Resident; common on rapid streams everywhere, but in Anglesey naturally scarce.

With reference to the Dipper singing in winter Mr. Ruddy records that on January 4th, 1908, when the Dee at Llangollen was partially frozen over, several Dippers were running merrily about on the ice and singing as joyfully as if it were summer.

In Anglesey Mr. H. King has met with this species on the River Braint.

The stomachs of two from Colomendy and two from Colwyn Bay examined by Dr. R. Newstead in 1908, were found to contain Caddis-worms, water-beetles, and Entomostraca.

Mr. Oldham remarks that the Dipper has a considerable range in altitude: At Old Colwyn it nests at sea level, while he has found it by tarns up to 2,200 feet on the Carnedds and in Cwm Glas, Snowdon.

29.—LONG-TAILED TITMOUSE. *Ægithalos caudatus roseus* (Blyth).

Resident; generally distributed and common in most districts, except Lleyn and Anglesey.

In Anglesey Mr. C. Oldham saw a few with Goldcrests and Blue Tits in Penrhos Woods near Holyhead, 14th October,

1912; and a flock near Bodorgan, 8th October, 1913. In Lleyn he saw a flock at Llanbedrog in October, 1914.

30.—GREAT TITMOUSE. *Parus major newtoni* Praz.

Resident, and more or less common everywhere except in north Anglesey.

31.—COAL TITMOUSE. *Parus ater britannicus* Sharpe and Dress.

Resident. Generally but unequally distributed throughout the district.

Mr. R. W. Jones reports it as frequent at Llandudno, and Mr. A. W. Boyd found it common along the Conway Valley, in 1906–7. Mr. Peter Foulkes-Roberts says it is now very common around Denbigh. It is not often seen in flocks, but on 10th January, 1908, Mr. T. Ruddy saw twelve together at Llangollen.

32.—MARSH TITMOUSE. *Parus palustris dresseri* Stejn.

Resident and common generally in the eastern half of the district, but very rare in the west except the Conway Valley: not authenticated in Anglesey.

Mr. R. W. Jones reports it as frequent at Llandudno in Carnarvonshire but Mr. H. King has never met with it round Bangor. In Denbigh and Flint Mr. A. W. Boyd has met with it at Trefriew, Coed Coch, and Llysfaen, and Dr. C. L. Williams at Holywell. In Merioneth Mr. H. G. Attlee identified it in two places above Llanbedr in July, 1909, and in two places three miles off in 1911.

32a.—BRITISH WILLOW TITMOUSE. *Parus atricapillus kleinschmidti* Hellm.

Recorded at Capel Curig, and doubtless occurs elsewhere.

In *British Birds*, IV., 147, Mr. H. G. Alexander records the occurrence of this Titmouse at Capel Curig in 1910. From its resemblance to the Marsh Tit it is easily overlooked.

33.—BLUE TITMOUSE. *Parus cæruleus obscurus* Praz.

Resident and common everywhere.

34.—NUTHATCH. *Sitta europæa britannica* Hart.

Resident; numerous in the Severn Valley, Montgomeryshire, and common in some parts of the English border; very rare in the west.

In Anglesey the Nuthatch had not been recorded until 14th May, 1910, when in company with Mr. L. F. Lort I observed

a pair at Llangoed near Beaumaris, while another was seen near the same place by Mr. R. W. Jones, 17th May, 1914, and another at Craig-y-don, Menai Bridge, by Mr. F. H. Mills in February, 1919. In Carnarvonshire the Nuthatch has been repeatedly seen in the neighbourhood of Llandudno from 1907 onwards by Mr. R. W. Jones, who found a nest at Gloddaeth in 1908. Further west it has been identified in Penrhyn Park by Mr. C. Oldham, 6th April, 1912 : at Llandwrog 6th September, 1914, and at Glynllifon Park in August, 1918, by Mr. S. G. Cummings ; while one was found dead in Vaynol Park, 1st May, 1917, by Mr. F. H. Mills. Mr. George Bolam describes it as common about Mallwyd on the borders of Montgomery and Merioneth.

35.—WREN. *Troglodytes troglodytes troglodytes* (L.).

Resident and numerous everywhere, even on the moors and mountains.

Mr. C. Oldham writes :—The Wren is ubiquitous ; to be seen in all sorts of situations from shore to mountain-top. On 24th September, 1913, I saw one among the crags on Aran Mawddwy above the 2,000 feet line ; another in October, 1914, among the stones at the top of Yr Eifl ; and a pair feeding young on an islet in Llyn Glas, Snowdon (2,250 feet), 17th July, 1916. In Lleyn the Wren is revered ; its nest is never molested, and the following sayings are current among the country folk :

Y sawl a dynno nyth y driw
Gyll ei iechyd tra fo byw.
Y sawl a dynno nyth y driw
Wêl o byth mo wyneb Duw.

i.e. He who harries (pulls) the nest of the Wren
Will lose his health for the rest of his life.
He who harries the nest of the Wren
Will never see the face of God.

36.—TREE CREEPER. *Certhia familiaris brittanica.* Ridgw.

Resident and common in all wooded districts up to a moderate elevation.

Professor J. H. Salter remarks that the Creeper sings persistently in all weathers throughout autumn, winter, and spring.

37.—PIED WAGTAIL. *Motacilla alba lugubris* Temm.

Resident or partial migrant ; generally distributed throughout the lowlands and up to a moderate elevation.

With reference to the period of migration Professor J. H. Salter remarks that the spring movement begins early in March.

Mr. S. G. Cummings observed large numbers near the Barmouth coast in August–September, 1912. On 12th April, 1911, Mr. H. King observed an albino feeding with Sparrows on the shore at Cemmaes, Anglesey. Mr. G. M. Furley has observed that it is absent from Llangollen in winter but returns in spring.

38.—WHITE WAGTAIL. *Motacilla alba alba* L.

Regular migrant along the west coast in spring and autumn; rare elsewhere, except a few migrants on the north coast in April: breeds occasionally.

The following are additional records. In Anglesey an adult male was seen by Mr. C. K. Siddall in Bull Bay, 28th September, 1909, and two near Beaumaris by the writer, 14th May, 1910. In Lleyn Mr. C. Oldham noted three at Aberdaron, three at Abersoch, and two on Bardsey during the first week of October, 1914: these were doubtless on the return migration. Mr. C. K. Siddall watched a male on the Dee at Berwyn in July, 1909—possibly one of a breeding pair, whilst Rev. Leo O'Hea saw several at Prestatyn, 24th April, 1913. In September 1913, Dr. N. F. Ticehurst noted numbers of Pied and White Wagtails migrating across Bardsey. In the larger movements White Wagtails predominated. They arrived generally from the N.W. and, passing along the W. side of the island, continued their flight to the south. A few also arrived on the southern tip of the island and crossed to the mainland in a N.E. direction. It is evident that this species *does* use the west coast route on the autumn migration, so the statement on p. LXIX. of the *Fauna N. Wales* to the contrary is incorrect.

39.—GREY WAGTAIL. *Motacilla cinerea cinerea* Tunst.

Resident or partial migrant; common on hill streams in summer but resorts to lower ground in winter; in Anglesey and Lleyn occurs mainly as a migrant.

Mr. C. Oldham observes that in Lleyn and Anglesey the Grey Wagtail is more generally diffused in autumn than in summer: he saw some on Bardsey in October, 1914. Dr. N. F. Ticehurst, however, in 1913 found a pair nesting within 200 yards of the sea in the N.W. corner of Aberdaron Bay—about as far west as they could go. Mr. S. G. Cummings noted a female on Malldraeth, Anglesey, 14th June, 1915, and one on a small brook at Pentraeth, Red Wharf Bay, 26th May, 1910. In August, 1916, he saw several birds of the year, and on 3rd September, 1917, one at Llandwrog, Carnarvon, while in August, 1918, he noted several at Morfa Dinlle, Carnarvon.

40.—BLUE-HEADED WAGTAIL. *Motacilla flava flava* L.

Passing migrant in April and May, in small numbers.

Besides the two recorded in the *V. Fauna N. Wales*:—In *British Birds*, IV., 183, Mr. T. A. Coward records a female at Llandudno, 15–18th May, 1910. In the same Journal, VI., 16, Mr. R. W. Jones reports the occurrence of an adult female, adult male, and two immature birds at Llandudno in May, 1912. Again in 1913 one was seen there on April 25th, and a pair on the 27th. He tells me, too, that he saw a female with eight Ray's Wagtails, 1st May, 1914.

41.—YELLOW, OR RAY'S WAGTAIL. *Motacilla flava rayi* (Bp.).

Summer migrant, distributed irregularly throughout all counties but very rare in Anglesey: in the west chiefly a passing migrant in April.

The following additional records are given here as being unusual in regard to date or locality. In Anglesey I saw a female near Beaumaris 14th May, 1910, and Messrs. King and Owen noted a pair at the same place and date: Mr. S. G. Cummings noted a few birds of the year near Newborough, 27th August, 1912. In Carnarvonshire he also saw several on Dinas Morfa in August, 1914. In Merioneth, too, he saw at Barmouth one on 27th August and several 15th September, 1912; whilst Mr. H. G. Attlee noted four to two at Mochras on 19th August, 1911, and following days. It occurs at Bardsey on the autumn migration; Dr. N. F. Ticehurst reports eleven—mostly single birds—between 4th and 20th September, 1913.

42.—TREE-PIPIT. *Anthus trivialis trivialis* (L.).

Summer migrant; common in all wooded districts, and occurs in smaller numbers on bare hillsides up to 1,500 feet; rare in Anglesey.

43.—MEADOW-PIPIT. *Anthus pratensis* (L.).

Partial migrant, common everywhere, especially on moors and hillsides.

43a.—RICHARD'S PIPIT. *Anthus richardi richardi* Vieill.

Obtained once only at St. Asaph.

44.—WATER OR ALPINE PIPIT. *Anthus spinoletta spinoletta* (L.).

Three obtained on the Glaslyn Estuary, Carnarvonshire.

45.—ROCK PIPIT. *Anthus spinoletta petrosus* (Mont.).

Resident and common on the coasts and islands.

In *British Zoology* Pennant describes the Rock-Pipit which he got from the coast of Carnarvonshire as a variety of the Meadow Pipit "with dusky legs."

In May-June, 1906, Mr. O. V. Aplin found a nest with *six* eggs on St. Tudwal's, and received a nest, taken in Lleyn with a clutch of four eggs of the rare and beautiful pink variety (*Zoologist*, 1910, 105).

46.—GOLDEN ORIOLE. *Oriolus oriolus oriolus* (L.).

Very rare summer migrant, said to have nested in Merioneth.

47.—GREAT GREY SHRIKE. *Lanius excubitor excubitor* L.

Occasional autumn or winter migrant; not known to occur in the west or Anglesey.

One sent to Shrewsbury for preservation was shot in Montgomeryshire in October, 1910, whilst in the same county another was shot at Pen-y-bont, 24th March, 1911. Mr. R. Morgan reports that one was caught while trying to reach a caged Goldfinch at Llanarmon, near Mold, 21st December, 1914.

48.—RED-BACKED SHRIKE. *Lanius collurio collurio* L.

Summer migrant, distributed irregularly throughout the district but common only in one or two localities; scarce in Anglesey.

In Anglesey recent occurrences have been recorded by Mr. S. G. Cummings, who saw a pair near the hotel in Red Wharf Bay and a male at Llanbedr Goch towards the end of May, 1913; also a pair with nest and young at Wern, East Anglesey, 23rd June, 1917, and a single bird on Bwrdd Arthur in August, 1919. Mr. G. R. Humphreys saw two at Menai Bridge, 2nd August, 1908. In Carnarvonshire Mr. O. V. Aplin noted a pair on Mynydd Mawr in July, 1905; Mr. A. G. Edwards found a pair nesting at Portmadoc in 1906–7; while Mr. H. King has repeatedly found a pair nesting at Bangor and in the Aber Valley; Rev. E. Lorimer Thomas found a nest and eggs at Bethesda in 1889; and Mr. S. G. Cummings saw a female with two fledged young at Dinas Dinlle, August, 1916. Mr. R. W. Jones found a nest with eggs on the Great Orme's Head 28th May, 1913. In Denbigh and Flint a pair with young were seen by Mr. Cummings between Bodfari and Tremeirchion 5th July, 1911, while Mr. R. Morgan saw a

pair at Llanarmon, near Mold, in May, 1910, and found the nest in June—never noted there before. Rev. E. Lorimer Thomas noted one at Holywell in May, 1918. Several further records have been received from the Barmouth district, and from the borders of Merioneth and Montgomery. Mr. G. Bolam states that a pair which nested at Llanuwchllyn in 1906 both had similar—male character—plumage. Rev. E. Lorimer Thomas noted four males in full song at Llandinam late in May, 1918.

49.—WAXWING. *Bombycilla garrula garrula* (L.).

Rare winter visitor, recorded in various parts of the district.

One was shot and two others seen by Mr. Rhys P. Allaway at Llanbedr, near Barmouth, in December, 1901 : one seen near Bala, 7th November, 1906, by Mr. G. Bolam ; and one shot and several others seen at Llansannan, near Denbigh, in January, 1915, by Mr. P. Foulkes Roberts. The ancient specimen mentioned by Pennant as killed at Garthmeilio in 1788 is still extant and in the possession of Mr. R. D. Roberts of St. Asaph.

50.—SPOTTED FLYCATCHER. *Muscicapa striata striata* (Pall.).

Summer migrant, common throughout the lowlands.

51.—PIED FLYCATCHER. *Muscicapa hypoleuca hypoleuca* (Pall.).

Summer migrant, occurring in all counties but rare in Anglesey and along the north coast ; rather local inland but common in many wooded valleys, especially in Merioneth.

Mr. C. E. Munro Edwards records a nest in a garden wall at Dolgelley. A nest containing *nine* eggs was found on 2nd June, 1910, at Bettws-y-coed, by Mr. A. W. Champernowne. In the early summer of 1910 one was seen in Plas Cadnant Woods, Menai Bridge, by Mr. F. H. Mills—a new record for Anglesey. Other additional localities are Pwllheli, a male, 23rd April, 1909 ; Holywell, May, 1903 ; and Llanbrynmair, 8th May, 1907. Mr. C. Oldham noted it as numerous in Beddgelert district : he found four nests in Gwynant Valley in June, 1914. In May, 1909, Mr. W. M. Gallichan saw two males close to the Hotel on Lake Vyrnwy, and in May, 1918, Rev. E. Lorimer Thomas saw one at Llandinam.

Dr. N. F. Ticehurst reports that both species of Flycatcher occurred on Bardsey in small numbers in September, 1913.

52.—SWALLOW. *Hirundo rustica rustica* L.

Summer migrant, generally distributed and common.

Frank Buckland's account of hibernating Swallows is obviously taken from Pennant, who in his *British Zoology* states that "Rev. — Conway of Sychton [Soughton], Flintshire, a few years ago [*i.e.*, about 1770], on looking down an old lead mine in that county, observed a number of Swallows clinging to the timbers of the shaft, seemingly asleep. On flinging some gravel on them they just moved, but never attempted to fly or change their place. This was between All Saints and Christmas."

In the *Vert. Fauna of Cheshire*, I., 190, Mr. J. J. Cash is quoted to the effect that when leaving Cheshire in autumn Swallows and Martins invariably fly westward. Mr. S. G. Cummings, on 10th June, 1918, found a nest built between two branches forming the flat roof of a shed in Red Wharf Bay, Anglesey.

53.—HOUSE MARTIN. *Delichon urbica urbica* L.

Summer migrant, common in lowlands and valleys, except Lleyn and parts of Anglesey.

The late C. K. Siddall informed me that he noticed that in the Swallows' Cave, Bull Bay, the Martins seem always to be overtaken by cold weather, there being many young in the nests at the end of September—the 28th, in 1908. Mr. R. W. Jones has found young in nests on the Great Orme's Head in October.

54.—SAND MARTIN. *Riparia riparia riparia* (L.).

Summer migrant, generally distributed in suitable localities, except in Anglesey, where it is not common.

The earliest date of arrival noted in Wales was 24th March, 1913, when several were observed passing in Carnarvonshire. Mr. R. W. Jones remarks that the Sand Martin is uncommon now in the Llandudno district as a breeding bird, though formerly large numbers used to breed in the sandhills along the Conway estuary, and it is still numerous as a passing migrant.

55.—GREENFINCH. *Chloris chloris chloris* (L.).

Resident, generally distributed, and abundant almost everywhere.

The stomachs of two killed at Prestatyn in October were found by Dr. R. Newstead to be full of charlock seeds. Mr. S. G.

Cummings found two nests in 1907, each containing six eggs. He also noted a considerable number in flock at Caerwys so late as 28th April, 1911. Mr. C. Oldham remarks that the Greenfinch leaves some parts of North Wales in autumn and appears to be absent from Beddgelert even in summer.

56.—HAWFINCH. *Coccothraustes coccothraustes coccothraustes* (L.).

Resident; fairly common in the eastern half of the district and gradually spreading westward, though as yet unknown in Lleyn and very rare in Anglesey.

During the last few years the Hawfinch has become established around Bangor where it now nests regularly. From thence it appears to have crossed the Straits into Anglesey, for in June, 1906, one was shot in a garden at Trescawen and identified by Mr. W. H. H. Kellie, Liverpool; while on 23rd June, 1917, Mr. S. G. Cummings observed one at Wern, Red Wharf Bay. In Merioneth Mr. G. Bolam reports having seen three between Bala and Dolgelley in June, 1906, while many additional records have been sent in from Denbigh and Flint. The species is most numerous, however, in Montgomery.

57.—GOLDFINCH. *Carduelis carduelis britannica* (Hart.).

Resident, generally distributed and common.

58.—SISKIN. *Carduelis spinus* (L.).

Irregular winter migrant, occurring in all counties: rarely breeds.

In Anglesey Mr. C. Oldham saw a flock of about thirty at Holyhead, 9th October, 1913. In Denbighshire Mr. T. Ruddy saw a flock of about fifty at Llangollen, 1st January, 1910. The only additional summer record is a male seen in Pwll-y-crochan Wood, Colwyn Bay, by Mr. D. Witty, 19th July, 1908.

59.—HOUSE SPARROW. *Passer domesticus domesticus* (L.).

Resident; abundant throughout the district, except at remote hill farmhouses and hamlets.

60.—TREE SPARROW. *Passer montanus montanus* (L.).

Resident; very local, but occurs in all counties.

Mr. S. G Cummings observed this species at Penrhyn and Rhos Golf Links, 19th February, 1909; also in two farmyards near

Caerwys in winter, 1910–11, though he has not found it nesting there. Mr. G. Bolam reports one at Llangollen in summer, and three at Bala in autumn, 1906.

61.—CHAFFINCH. *Fringilla cœlebs cœlebs* L.

Resident and more or less abundant throughout the district.

On 11th April, 1914, Mr. C. Oldham saw several amongst the rocks on the extreme summit of Snowdon, which was enveloped in clouds. A nest found near Caerwys by Mr. S. G. Cummings in April, 1914, was only about one and a half feet above the ground. Dr. N. F. Ticehurst says the Chaffinch appears to be absent from Bardsey in summer.

62.—BRAMBLING. *Fringilla montifringilla* L.

Winter migrant, occurring irregularly throughout the district.

Mr. C. Oldham observed several in Penrhos Woods, Holyhead, as early as 9th October, 1913. The Brambling remains till the end of March or, rarely, into April. Additional localities for the species are Llysfaen, Sealand and Caerwys in Denbigh and Flint, Dolgelley in Merioneth, and Kerry in Montgomery. In January, 1908, Mr. Ruddy observed a Brambling feeding on laburnum seeds at Llangollen. Though poisonous to children, these seeds are harmless to birds.

63.—LINNET. *Carduelis cannabina cannabina* (L.).

Resident and numerous almost everywhere, particularly in gorsy places.

64.—MEALY REDPOLL. *Carduelis linaria linaria* (L.).

Winter visitor, recorded only in Anglesey and Montgomery.

65.—LESSER REDPOLL. *Carduelis linaria cabaret* (P. L. S. Müll.).

Resident and breeds in all counties: numbers increased in winter months by immigrants.

Additional breeding localities are St. Asaph, Holywell, Llanarmon near Mold, and Dolgelley. Birds have also been seen in May or June, at Penmaenmawr, Dinas Dinlle, Llandwrog, Llanaelhaiarn, and Pantglas, in Carnarvonshire.

66.—TWITE. *Carduelis flavirostris flavirostris* (L.).

Occurs on moors and mountains from autumn to spring; rarely in summer.

In his *Wild Life in Wales* Mr. G. Bolam claims to have discovered two nests near Bala in May, 1905, but I cannot help thinking from his description and photograph of the nest that he was mistaken as to the species. A railway embankment is a most unlikely spot for a Twite's nest.

67.—BULLFINCH. *Pyrrhula pyrrhula pileata* McGilliv.

Resident; common in wooded country throughout the district.

68.—CROSSBILL. *Loxia curvirostra curvirostra* L.

Winter migrant, occurring irregularly, chiefly in the eastern half of the district; rare in the west, especially in Anglesey; sometimes occurs in summer, but very rarely breeds.

Dr. C. L. Williams reports it at Holywell in 1902. The remarkable invasion of Crossbills in 1909 penetrated even as far as the west coast. From September 28th to the end of February, 1910, flocks of eight or ten frequented the neighbourhood of Llangollen, and a similar flock was seen feeding on larches at Dolgelley by Mr. Ruddy, 18th November, 1909.

69.—CORN BUNTING. *Emberiza calandra calandra* L.

Resident; abundant near the west coast, especially in Anglesey; less numerous near north coast; rare inland.

Mr. King observed a pair with fully fledged young near Bangor at the end of May, 1910—a very early date for this late-breeding bird. On the other hand, Mr. R. D. Williams found a nest at Aberffraw with four fresh eggs, 22nd July, 1909. Mr. C. Oldham remarks that this Bunting deserts Lleyn in autumn, but is then still numerous in Anglesey, though less so than in spring. Dr. C. L. Williams reports a small flock, 3rd January, 1904, at Holywell, where he had not previously seen the species.

70.—YELLOW BUNTING. *Emberiza citrinella citrinella* L.

Resident and more or less numerous throughout the district.

Mr. C. Oldham states in *British Birds*, VIII., 196, that in Lleyn the Yellowhammer is called Gwas-y-neidr—Adder's servant—in allusion to the serpent-like marks on the eggs. With further

reference to the light colour of the race in the Holyhead district, it is interesting to note that in March, 1905, Mr. Cummings saw a Yellowhammer in North Anglesey that was almost white (*Zoologist*, 1911, 29). A nest with eggs found by Mr. Cummings at Llanaber, 15th May, 1912, was built in thick ivy on a stone wall about six feet above the road. It was not touching the wall but built in the ivy, and very well concealed.

The Yellowhammer appears to be absent from Bardsey in summer (Ticehurst).

71.—CIRL BUNTING. *Emberiza cirlus* L.

Resident; not uncommon locally in Denbigh, Flint, and Conway estuary; rare elsewhere.

Additional records. In Carnarvonshire—one seen by Mr. R. W. Jones at Gloddaeth, 28th April, 1907: he heard one singing at Llanwydden, 20th December, 1908—a very mild day. Several recorded in Denbigh and Flint; in the neighbourhood of Old Colwyn (Oldham), Llanygnog (Meares), Colwyn Bay, Caerwys, and Bodfari (Cummings) and Holywell (Forrest). In Merioneth, one at Llwyngwril (Crouch) and one at Tonfanau (Cummings). Mr. O. V. Aplin heard one at Montgomery, 24th July, 1914.

72.—REED BUNTING. *Emberiza schœniclus schœniclus* L.

Resident or partial migrant, common generally in boggy lowlands.

On the night of 25–26th October, 1912, twenty came to Carnarvon Bay Lightship.

73.—ORTOLAN. *Emberiza hortulana* L.

Seen on the Berwyns: seen and obtained on Bardsey Island.

Dr. N. F. Ticehurst reports one killed at Bardsey lighthouse in June, 1913, while he was on a visit to the island studying its bird-life. In September following, he and Mr. J. F. Stanford record an immature bird taken at the lantern on the night of 2–3rd. Next morning a single bird was clearly identified, and again on the 6th; two fresh ones on the 7th, then none till the 11th, when one was clearly identified. They were difficult to approach: they sat on bramble-sprays projecting from the turf-walls exactly like common Buntings, but with glasses their greenish hue and pink bills could be clearly seen. They were among a flock of Corn Buntings and were constantly visiting a patch of corn, their silvery call being very distinctive.

74.—SNOW BUNTING. *Plectrophenax nivalis* (L.).

Winter migrant, occurring irregularly in all counties, on the coasts and on hills inland.

Additional records in Carnarvonshire. Mr. R. W. Jones observed one haunting the Great Orme's Head through September and October, 1908, when it was joined by a second; Mr. H. King saw one at the mouth of the Ogwen in February, 1910; whilst on 4th April, 1913, Mr. C. Oldham noted one on the summit of Y Garn, 3,100 feet. On 24th February, 1918, Mr. F. L. Reading saw a very white one on the Great Orme's Head.

75.—STARLING. *Sturnus vulgaris vulgaris* L.

Resident; numerous everywhere; immense flocks on west coast in winter

In January, 1904, Mr. L. F. Lort obtained at Bangor a Starling with the hinder part of the body pure white: it looked as if it had been held by the beak and dipped in milk up to the shoulders. Mr. H. King describes a nest at Bangor in 1906 as "made like a Sparrow's but on the open branch of a fir." On 19th August, 1918, Mr. S. G. Cummings observed many Starlings on the top of Mynydd Craig Goch (1980 feet) with Mistle Thrushes feeding on bilberries.

76.—ROSE-COLOURED STARLING. *Pastor roseus* (L)..

Recorded twice only—in Anglesey and Flintshire.

The Flintshire example was obtained by the light-keeper at Point of Air in August, 1861. Cf. *British Birds*, IX., 273 and XI., 263.

77.—CHOUGH. *Pyrrhocorax pyrrhocorax* (L.).

Resident; formerly common on the coasts of Anglesey, Carnarvon, and Merioneth; a few in the mountains: still occurs, but in small and decreasing numbers.

Besides those mentioned in the *Fauna* there are at least two breeding colonies of the Chough in North Wales, though the localities cannot be divulged. In Lleyn the Chough is slowly dying out: Mr. W. W. Cobb reports that in 1908 there were not more than two or three pairs about Abersoch. The numbers appear to fluctuate, however, for Mr. C. Oldham saw ten together on Bardsey in October, 1914; others at Aberdaron and Llan-

bedrog—six pairs on Cilan Head. A few years ago Mr. S. G. Cummings also observed several in the Clynnog district. In July, 1909, Mr. Gilbert Johnson found a small colony of Choughs inland. His attention was first attracted by the bird's note, which "was more sonorous than the Jackdaw's and sounded like 'Pio chiang chiang.'" Noticing "whitewash" at one place, he found there a small hole in the rock which led down into an almost precipitous cave; this he descended with some difficulty, and explored with the aid of matches. Here were several old and young Choughs standing about. One used nest was found on a ledge, and there were probably others, as there were more than two adults flying about outside the cave when he emerged. There is another cave on a neighbouring mountain, but he was unable to find it though he saw and heard Choughs there. In August, 1914, Mr. C. Oldham saw between fifty and sixty feeding on a grassy slope in a certain cwm.

In June, 1913, Dr. N. F. Ticehurst saw a family party of two adults and five young on Bardsey, the latter easily distinguished by their shorter wings and tail, and pale, flesh-coloured legs. He adds, "They have an undulating flight, the dips being caused by a very pretty habit they have of completely closing their wings at intervals, and falling through the air for a yard or two, and then spreading their wings again." The young appear to leave the island before September, only the old birds remaining there.

78.—NUTCRACKER. *Nucifraga caryocatactes macrorhynchus* Brehm.

Recorded once only, in Flintshire.

79.—JAY. *Garrulus glandarius rufitergum* Hart.

Resident and common in wooded country, but scarce in Anglesey.

80.—MAGPIE. *Pica pica pica* (L.).

Resident and common; occurs up to a considerable elevation.

81.—JACKDAW. *Colœus monedula spermologus* (Vieill.).

Resident and common; remarkably abundant on west coast.

Mr. Ruddy records a Jackdaw obtained at Welshpool in November, 1909, in which the entire plumage was grey, the head rather darker than the rest. I saw a similar bird in a case at St. Asaph, but that one had a black forehead.

82.—RAVEN. *Corvus corax corax* L.

Resident; not uncommon in the west; much rarer in the east.

Nests in trees are rare nowadays but in 1908 a countryman living amongst the hills behind Abergele told me that on a certain estate there where there is no keeper, the Raven nests annually, always in a tree. A nest near Llangollen in 1912, contained a full clutch of six eggs as early as 26th February. In 1910 a pair nested on Puffin Island and reared three young (King and Owen). Dr. N. F. Ticehurst saw a party of five on Bardsey, 12th June, 1913. On 21st July, 1913, Mr. H. G. Attlee observed an extraordinary gathering of Ravens, at least twelve in number, at Penrhyndeudraeth : they had probably been drawn together by a dead sheep or some such attraction.

Mr. G. J. Williams tells me that the Raven used to be very numerous at Ffestiniog up to the middle of last century : scores were killed in some seasons. There are entries in the parish vestry book of payments of 1s. 3d. for an old Raven, and 7½d. for a "Raven's chicken." As the birds became rarer 2s. 6d. was paid for an old Raven and 1s. 3d. for a "chicken."

Mr. C. Oldham sends me a number of records showing that in Snowdonia and Anglesey the Raven still holds its own. On 16th August, 1911, ten were seen at the carcase of a pony on Carnedd Llewelyn. On 9th June, 1914, he saw at Trer Ceiri a Raven hotly pursued by a Kestrel, and on 31st July two Ravens chased by probably the same bird. One at Porth Ceiriad was mobbed by three Carrion Crows, which swooped at it repeatedly, sometimes two at once, but it always avoided the attack by swerving and tilting its body. It made no attempt to retaliate but croaked and dropped its legs when a Crow came at it.

Mr. H. Ecroyd Smith records in the *Liverpool Naturalists' Journal*, 1867, p. 161, that on the Little Orme's Head "these birds are more or less gregarious in winter, but upon the earliest approach of spring, and even before their congeners—the Rooks—are mating, a general excitement occurs. The male birds have a glorious fight, and the ultimate victor in the encounter remains for the season undisturbed master of the whole headland, the discomfited remainder retiring, some to the Great Orme's Head, and others to solitary fastnesses among the hills inland, leaving the champion in comparatively undisturbed possession, the Blue-Rock Pigeons, Razorbills, Guillemots, and Herring Gulls, being far too few to disturb his noble majesty."

Mr. Ecroyd Smith appears to have overlooked the pair of Peregrine Falcons which tenant the Orme's Heads every year, and who are unquestionably "Lords of the Manor."

The Raven is reported by Mr. C. E. Munro Edwards as increasing about Dolgelley. Five were seen flying together, apparently migrating, in December, 1907; the weather afterwards became cold and stormy.

The stomach of a Raven obtained on Arennig 23rd April, 1903, examined by Dr. R. Newstead, contained one egg of a Grouse in broken fragments, a quantity of carrion mixed with sheep's wool, small-bone of mammal, moss and other vegetable matter, and one pebble.

83.—CARRION CROW. *Corvus corone corone* L.

Resident: common, except where killed down; abundant in mountainous country.

84.—HOODED CROW. *Corvus cornix cornix* L.

Rare winter visitor, recorded in all counties; nests occasionally.

Mr. H. King reports a pair nesting in 1917 between Aber and Llanrwst. Mr. R. W. Jones saw two at Llandudno, 31st December, 1910, and one 7th January, 1911. Mr. C. Oldham noted two at a dead sheep on the Dee Marshes, 10th February, 1907.

85.—ROOK. *Corvus frugilegus frugilegus* L.

Resident and common; least numerous in the west.

On 23rd January, 1910, Mr. D. Witty observed at Mochdre a Rook with a white bar across each wing.

86.—SKYLARK. *Alauda arvensis arvensis* L.

Common and generally distributed: flocks pass along coasts in winter.

Dr. Ticehurst remarks that it appears to be absent from Bardsey in summer.

87.—WOODLARK. *Lullula arborea arborea* (L.).

Rare resident, very local; occurs in winter on migration, chiefly on west coast.

The nest reported in the *Fauna* as found by Rev. F. C. R. Jourdain in 1904 was actually found at Dyserth, 5th June, 1903. Mr. Ruddy noted four Woodlarks at Llangollen, 25th October, 1908, and others 20th December, 1909, and 14th January, 1910: also two at Dolgelley in November, 1909.

88.—SHORE LARK. *Eremophila alpestris flava* (Gm.).

Recorded on the Dee Estuary.

89.—SWIFT. *Apus apus apus* (L.).

Summer migrant, common almost everywhere.

Mr. H. King observes that large numbers breed in the mountains, especially on Tryfaen and the Glyders. In June, 1915, Mr. C. Oldham saw several hawking about the summit of Carnedd Dafydd—3,426 feet. In 1917 Mr. Cummings observed one at Morfa Dinlle on 3rd September, and in 1918 one at Llandwrog on 16th September.

90.—NIGHTJAR. *Caprimulgus europæus europæus* L.

Summer migrant, generally distributed; most numerous near the west coast.

From the 16th to 30th September, 1911, a Nightjar frequented Mr. F L. Rawlins' garden at Rhyl: it used to bask in the sun on the top of a wooden bee-hive: on the 19th it allowed me to approach within five feet and take a photograph. Beckwith mentions one killed in North Wales, 25th November, 1887—a remarkably late date. For four years in succession Mr. S. G. Cummings found young in the same spot on the sandhills at Morfa Dinlle, Carnarvonshire.

91.—GREAT SPOTTED WOODPECKER. *Dryobates major anglicus* (Hart.).

Resident; fairly common in wooded parts of the district, occurring in all counties.

Anglesey must now be added to the counties where it occurs. Mr. T. Owen observed one at Penmon, 3rd April, 1912. Additional localities in Carnarvonshire are Portmadoc, where Mr. A. G. Edwards saw one in his garden in the summer of 1906; Bangor, where Mr. T. A. Coward says a pair settled in 1908; and the wooded parts of Nant Francon where Mr. C. Oldham has met with it several times.

92.—LESSER SPOTTED WOODPECKER. *Dryobates minor comminutus* (Hart.).

Resident; not uncommon in the eastern half of the district but almost unknown in the west.

A number of additional records have been received from the three eastern counties, but these need not be detailed. In

Merioneth, where the species is rare, Mr. C. E. Munro Edwards reports that it has been met with occasionally in the woods near Dolserau, Dolgelley, whilst in the Bala district Mr. R. J. Lloyd Price found it nesting at Rhiwlas in 1908, and Mr. Ruddy at Palè in 1911. One was seen by Mrs. Williams eating "American Blight" on apple-trees at Leighton, Welshpool, in July, 1913.

93.—GREEN WOODPECKER. *Picus viridis pluvius* Hart.

Resident and common in all suitable parts of the district.

94.—WRYNECK. *Jynx torquilla torquilla* L.

Summer visitor, occurring irregularly in the eastern counties; very rare in the west.

In the *B.O.C. Migration Report*, 1912, the Wryneck is recorded in Montgomeryshire on 20th April and 2nd May. In 1913 one was taken at the Bardsey light, 5–6th September, while Mr. J. K. Stanford saw another next morning on a turf bank, looking strangely out of place in such a position.

95.—KINGFISHER. *Alcedo ispida ispida* L.

Resident, generally distributed in lowlands; most numerous in Montgomeryshire.

96.—ROLLER. *Coracias garrulus garrulus* L.

Rare visitor; recorded three or four times on the north coast.

97.—HOOPOE. *Upupa epops epops* L.

Summer migrant, of rare and uncertain occurrence.

Montgomery may be added to the counties in which this bird has occurred: Mr. Ford, Newtown, has a specimen which was obtained at Aberhafesp about 1870. In Merioneth one was seen by Mr. R. J. Lloyd Price at Rhiwlas in August, 1907, and another by Mr. William Beattie at Aberdovey, 7th August, 1911.

98.—CUCKOO. *Cuculus canorus canorus* L.

Summer migrant, common everywhere.

The earliest and latest dates recorded are 10th April, 1881 (*Brit. Assn. Report*), and Carnarvonshire, 15th September, 1912 (*B.O.C. Migr. Rept.*).

99.—YELLOW-BILLED CUCKOO. *Coccyzus americanus americanus* (L).

Accidental straggler from America, obtained twice on west coast.

100.—BARN OWL. *Tyto alba alba* (Scop.).

Resident and more or less common in lowlands.

[EAGLE OWL. *Bubo bubo bubo* (L.).

Beckwith mentions one killed in a big wood near Llanidloes in November, 1863—doubtless an escaped bird.]

101.—LONG-EARED OWL. *Asio otus otus* (L).

Resident; occurring in most districts where there are pine woods.

The following are additional records of breeding. Messrs. H. King and T. Owen found a nest with five eggs in a small wood near Penmynydd, Anglesey, 2nd April, 1908. They also record nests in Carnarvonshire near Caerhun in 1908, Vaynol 1909, and Conway, 1910. In Montgomeryshire Mr. George Mountford reports a nest with two eggs at Churchstoke, 5th April, 1913.

102.—SHORT-EARED OWL. *Asio flammeus flammeus* (Pontopp.).

Winter migrant, occurring in limited numbers on bogs and moors throughout the district; occasionally remains to breed.

103.—TAWNY OWL. *Strix aluco aluco* L.

Resident and generally distributed in wooded lowlands; most numerous in Montgomeryshire and West Merioneth.

[TENGMALM'S OWL. *Ægolius funereus funereus* (L.).

Winter visitor, obtained once or twice in Flintshire.]

[LITTLE OWL. *Athene noctua noctua* (Scop.).

Several recorded in Anglesey: probably imported birds.]

[SNOWY OWL. *Nyctea nyctea* (L.).

Reported in winter in Flintshire and Lleyn.]

104.—MARSH HARRIER. *Circus æruginosus* (L.).

Resident, now very rare; occurs on bogs and moors.

105.—HEN HARRIER. *Circus cyaneus* (L.).

Former resident; now very rare; occurs chiefly on moorlands.

Mr. P. F. Howden watched a pair at the nest in Cwm Bychan, 11-12th April, 1909: there were no eggs, however. I was shown an immature male which had been obtained at Llanbrynmair, Montgomeryshire, 11th November, 1907.

106.—MONTAGU'S HARRIER. *Circus pygargus* (L.).

Summer migrant, very rare: only known to have occurred in Carnarvon, Denbigh and Merioneth.

Mr. C. Oldham tells me that for several years past a pair have frequented a certain mountain in Carnarvonshire, and no doubt nested there.

107.—COMMON BUZZARD. *Buteo buteo buteo* (L.).

Not uncommon resident in the west; autumn visitor to the east; almost unknown in Anglesey.

By a most unfortunate blunder in typing the original *Fauna* I am made to say on page 222, that the Buzzard rears two broods in a season! What I actually wrote was:—"The Buzzard *never* rears two broods in a year, but like most birds will lay again if robbed of its first clutch of eggs." This last statement is correct, for I have known instances of second laying, though such cases are not common. It would be more accurate to state that the Buzzard sometimes lays again when robbed of its first clutch. Another statement on the same page which needs modification is that regarding the length of time the young remain in the nest. It is given there as a month. They stay a good deal longer than that, generally about six weeks, before quitting the nest.

Two instances of early nesting have been reported to me: a nest with three young was found at Aber, 7th May, 1909, by Mr. H. King; while in 1913 Mr. T. Owen visited a nest which contained three eggs on 16th April. With regard to food; a friend of Professor Salter's saw a Buzzard rise from a cliff-slope near Barmouth with a snake dangling from its claws. Dr. R. Newstead found remains of a Grouse in the stomach of one obtained on Arennig, 9th September, 1902: doubtless the Grouse had been wounded during a shoot over these moors.

108.—ROUGH-LEGGED BUZZARD. *Buteo lagopus lagopus* (Brünn.).

Autumn and winter migrant; rare in the east, still rarer in the west.

A pair were shot at Rhiwlas near Bala in 1866.

GOLDEN EAGLE. *Aquila chrysaëtus chrysaëtus* (L.).

Formerly resident in the Snowdon range but became extinct more than a century ago.

Mr. H. G. Attlee watched one in Cwm Bychan for three quarters of an hour on 2nd July, 1909, during which time it was chased first by a Buzzard, and then, repeatedly, by two Ravens. In view of the recent multiplication of this species in Scotland there is no inherent improbability in this occurrence: it may well have been an immature or "unattached" bird.

109.—WHITE-TAILED EAGLE. *Haliaëtus albicilla* (L.).

Rare winter or spring visitor.

An immature White-tailed Eagle, which had haunted the neighbourhood for a fortnight previously, was shot in the wing and captured alive near Abersoch, 29th November, 1910. It was sent alive to Mr. Godfrey Fitz-Hugh, Wrexham, and placed in an aviary. An eagle, probably the same bird, haunted the vicinity of Aberaeron (Cardigan) for about a fortnight earlier in the same autumn.

Mr. A. Heneage Cocks informs me that there was formerly a stuffed eagle at Voelas Hall, obtained on the estate in the forties, but it disappeared while he was a boy, so he cannot be sure as to the species.

110.—SPARROW HAWK. *Accipiter nisus nisus* (L.).

Resident, common in most wooded districts; less common in Lleyn and Anglesey.

111.—KITE. *Milvus milvus milvus* (L.).

Former resident, now only a casual visitor.

Rev. W. S. Symonds, in *Records of the Rocks*, p. 171, writes: "The Kite is rare, but the last time I was on Moel Fenlli I saw two soaring among the clouds." The mountain is on the E. side of the Vale of Clwyd, and the date would be about 1870.

112.—HONEY BUZZARD. *Pernis apivorus apivorus* (L.).

Summer migrant, occurring chiefly on autumn migration; very rare.

In the *Zoologist*, 1908, 156, Mr. C. D. Head records a male in his possession shot at Abergele, 15th October, 1907.

113.—GREENLAND FALCON. *Falco rusticolus candicans* Gmel.

Obtained twice on Denbighshire moors.

Mr. A. Heneage Cocks informs me that there is preserved at Voelas Hall, Denbighshire, a Greenland Falcon trapped on the estate by the keeper.

114.—PEREGRINE FALCON. *Falco peregrinus peregrinus* Tunst.

Resident and breeds in fair numbers amongst mountains and on precipitous coasts: in the east chiefly a passing autumnal migrant.

The *Fauna* is hardly correct in stating that there is no hollow to keep the eggs together: there is always a shallow hollow, and sometimes a slight lining. The number of eggs is usually three.

Rev. W. S. Symonds in *Records of the Rocks*, p. 61, states that in 1210 the Bishop of Bangor had to pay a fine of 200 hawks (*i.e.*, Falcons) to King John, and was supposed to have procured the birds from Pembrokeshire. It is more probable, however, that he would have got them in his own province.

115.—HOBBY. *Falco subbuteo subbuteo* L.

Summer visitor, met with rarely on autumn migration.

116.—MERLIN. *Falco columbarius æsalon* Tunst.

Partial migrant; breeding on moorlands, and met with in the lowlands on migration: also breeds in Anglesey and Lleyn chiefly on the coasts.

117.—RED-FOOTED FALCON. *Falco vespertinus vespertinus* L.

Obtained once in Denbighshire.

118.—KESTREL. *Falco tinnunculus tinnunculus* L.

Partial migrant; in summer generally distributed and common, especially on precipitous coasts.

In North Anglesey Mr. H. King observed a fully-fledged young Kestrel on 27th July, 1917, try to perch on a vertical cliff-face; it eventually succeeded much after the manner of a Swift.

119.—OSPREY. *Pandion haliaëtus haliaëtus* (L.).

Rare visitor in autumn and winter.

Beckwith mentions one seen fishing in a lake on Llanbrynmair hills 6th August, 1884—possibly the same bird seen at Penybont in October, 1884.

120.—CORMORANT. *Phalacrocorax carbo carbo* (L.).

Resident, common, and breeds on rocky coasts in the west: feeds also off other parts of the coast and occasionally far inland.

On 2nd October, 1913, Mr. C. Oldham saw Cormorants apparently feeding young on the Bird Rock near Towyn—a very late date. He noted about thirty nests in June, 1915, in the colony at Pen-y-parc, Anglesey.

121.—SHAG. *Phalacrocorax graculus graculus* (L.).

Resident and fairly numerous in Carnarvonshire and Anglesey; not common elsewhere, and very rare inland.

Neither Shags nor Cormorants now nest on Puffin Island, but from time to time both species are to be seen there: these visitors doubtless come from Penmon Point opposite, where many Cormorants and a few Shags nest. An immature Shag was shot at Middletown on the Shropshire border, 29th September, 1903—the only Montgomeryshire record.

122.—GANNET. *Sula bassana* (L.).

To be seen over the sea at all seasons; sometimes driven inland by gales.

Small parties and flocks numbering up to twenty have been observed on various parts of the coast, but details are unnecessary. F. W.[illiams] records in the *Field*, 16th October, 1886, one three miles from Welshpool "some years ago." This is the only Montgomeryshire record. On 12th August, 1916, Mr. Cummings saw fifty or more in Carnarvon Bay.

123.—COMMON HERON. *Ardea cinerea* L.

Resident; generally distributed throughout the lowlands.

Mr. H. King states that in Carnarvonshire there was formerly a heronry with five or six nests at Treborth, but the birds appear to have removed to Vaynol, where there were several nests in

1909. There is a larger heronry—fifteen to twenty nests—in Penrhyn Park near the weir, and Mr. S. G. Cummings reports another at Glynllifon Park. The herons described in the *Fauna* as of Craig-y-don, actually nest on two small wooded islets, known as Cadnant Islands, in the Menai Straits. I visited them in May, 1910, when there appeared to be about forty herons there, the majority young but well-fledged birds, out of the nest and standing or walking about at the water's edge. In 1913 there were fewer—only five nests occupied. Mr. W. W. Cobb tells me that a pair nested at Nanhoron in 1908 and 1909. The nest has also been observed at Tyddyn Gwyn, Llangian.

Mr. C. Oldham observes that in North Wales, "Herons are persistently harried by Terns—even the Lesser Tern—if they trespass on the birds' breeding grounds, and occasionally at any rate at other times. On September 11th, 1915, a Common Tern chased a Heron for perhaps a quarter of a mile across Afonwen Bay. The Tern with shrill cries stooped repeatedly at the Heron, which doubled and twisted to avoid it, keeping close to the surface of the water, and being apparently in a state of frantic terror, crying *frank, frank*, until the Tern desisted, when it flew off across the bay."

124.—SQUACCO HERON. *Ardeola ralloides ralloides* (Scop.).

Obtained twice, in Denbighshire and Montgomeryshire.

125.—NIGHT HERON. *Nycticorax nycticorax nycticorax* (L.).

Obtained twice in Anglesey, and reported in Flintshire.

An adult was shot at Rhosneigr, Anglesey, on 31st May, 1919 (Coward, *Brit. Birds*, XIII, 58).

126.—LITTLE BITTERN. *Ixobrychus minutus* (L.).

Very rare visitor, obtained in Anglesey, Flintshire, and Merioneth.

127.—AMERICAN BITTERN. *Botaurus lentiginosus* (Mont.).

Obtained once in Anglesey.

128.—COMMON BITTERN. *Botaurus stellaris* (L.).

Winter visitor, not infrequent, especially in the west.

Mr. H. S. Davenport states that there is evidence that the Bittern nested early in the eighties in a marsh between Bala

and Dolgelley. It was repeatedly heard booming in the evenings.

129.—GLOSSY IBIS. *Plegadis falcinellus falcinellus* (L.).

A small flock visited Anglesey in 1806.

130.—SPOONBILL. *Platalea leucorodia leucorodia* L.

Rare autumn or spring visitor to estuaries: obtained once in Montgomeryshire.

There is a specimen in the possession of Mr. Ford, Newtown, Montgomeryshire, shot near Aberhafesp about 1870. Mr. J. A. Dockray records one shot on the Dee Marshes near Burton, 16th November, 1913.

131.—FLAMINGO. *Phœnicopterus ruber antiquorum* Temm.

Has occurred twice in Merioneth.

Four seen on the Dysynni estuary on 30th September, 1913—one of them shot next day by Mr. Sydney Westwood of Birmingham—were probably escaped birds.

132.—GREY LAG-GOOSE. *Anser anser* (L.).

Winter migrant of rare and irregular occurrence on estuaries.

A large flock of geese seen feeding on the marsh below Talycafn on 7th February, 1910, by Mr. W. B. Halhed is believed to have been of this species. At least one out of a gaggle of fourteen seen by Mr. S. G. Cummings on the Dee Marshes in January, 1908, was a Grey Lag.

133.—BEAN GOOSE. *Anser fabalis fabalis* (Lath.).

Winter migrant, not uncommon on estuaries.

Mr. S. G. Cummings saw fifteen on the Dee Marshes, 22nd January, 1908. He noticed that they were much less wary then the Pink-footed, and quite silent whether on the wing or on the ground.

134.—PINK-FOOTED GOOSE. *Anser brachyrhynchus* Baillon.

Winter migrant, occurring regularly on the Dee Marshes and occasionally in Merioneth and elsewhere.

According to Mr. T. A. Coward (*Vert. Fauna Cheshire*, I., 314) the numbers on the Dee Marshes during the last few years

have reached a thousand or more each winter. In 1913 the last of these geese (three) did not leave until April 8th. The first arrived 19th September, 1912. Mr. Cummings saw between 700 and 800 there 2nd February, 1911.

135.—WHITE-FRONTED GOOSE. *Anser albifrons* (Scop.).

Winter migrant, not uncommon on the estuaries; obtained in all counties.

One shot by Mr. J. R. Humphreys near Holyhead, 20th November, 1915. Mr. Coward states that this species was particularly numerous on the Dee estuary in February, 1904 (*Op. cit.* I., 313). A male was shot at Towyn in January, 1908.

136.—BRENT GOOSE. *Branta bernicla bernicla* (L.).

Occasional winter visitor to estuaries chiefly on the west coast.

Several additional occurrences on the west coast of Anglesey have been recorded. Dr. C. L. Williams tells me there is a local example preserved at Talacre. Pennant (*Tour*, II., 374) mentions both Brent and Bernacle Geese among the wreckage of birds at Criccieth in 1776.

137.—BERNACLE GOOSE. *Branta leucopsis* (Bechst.).

Winter visitor to the coasts, chiefly on the north; now very rare.

Mr. F. H. Mills observed one on the bog at Llanerchymedd, Anglesey, 27th November, 1911. Mr. Coward records (*V. Fauna Cheshire*, I., 316) eight on the Dee estuary near Hilbre Island, 2nd March, 1886.

138.—MUTE SWAN. *Cygnus olor* (Gm.).

Occurs in all counties in a domesticated state.

139.—BEWICK'S SWAN. *Cygnus bewickii bewickii* Yarr.

Winter visitor of uncertain occurrence, chiefly on the estuaries.

Mr. L. Brooke records a flock of twenty-six on the Dee estuary near Heswall, in December, 1907, while Messrs. Coward and Oldham mention one shot on Hilbre Island, 27th October, 1897 (*Birds Cheshire*, 256).

140.—WHOOPER SWAN. *Cygnus cygnus* (L.).

Winter visitor, not uncommon on flat coasts and estuaries; rarer on inland waters.

The following are additional records. One in very poor condition received from Anglesey by Dr. R. Newstead, 26th December, 1890. The *Vert. Fauna of Cheshire*, I., 318, records gaggles seen on the Dee estuary numbering about forty on 6th March, 1890; twenty-one 24th November, 1901; and twenty-five in 1904.

141.—COMMON SHELD-DUCK. *Tadorna tadorna* (L.).

Resident and common on sandy coasts and estuaries.

Mr. H. Ecroyd Smith found at Point of Air a nest with eleven eggs, and states that the clutch usually numbers eleven or twelve and often up to fourteen. Mr. W. M. Gallichan reports it as occasionally visiting Lake Vyrnwy in winter.

142.—MALLARD. *Anas platyrhyncha platyrhyncha* L.

More or less common, resident everywhere: numbers greater in winter.

143.—GADWALL. *Anas strepera* L.

Rare winter visitor.

Mr. John A. Dockray shot a young male at Heswall on the Dee estuary, 19th August, 1914 (*Brit. Birds*, VIII., 120).

144.—SHOVELER. *Spatula clypeata* (L.).

Not uncommon in winter on flat coasts; rarer inland; breeds in Anglesey and occasionally Merioneth.

Mr. H. King noted a pair on Llyn Bodgolched, Anglesey, in the summer of 1909; three pairs in 1910: in 1911 two pairs nested and brought off seventeen young between them. Mr. G. Bolam saw a pair on Bala Lake, 26th February, 1906.

145.—PINTAIL. *Anas acuta* L.

Winter visitor; not uncommon on flat coasts; rare inland.

Mr. R. W. Jones noted a pair on Conway estuary, 13th March, 1909. Dr. C. L. Williams says it occurs at Holywell; while

Mr. H. Franklin obtained two females at Towyn, 8th November, 1909.

146.—TEAL. *Anas crecca crecca* L.

Common in winter and a few breed in all six counties.

Mr. H. King saw a pair 11th August, 1908, in Cwm Eigiau, 1,600 feet elevation, while Mr. C. Oldham has seen Teal on Ffynnon Llugwy at 1,786 feet.

146a.—AMERICAN BLUE-WINGED TEAL. *Anas discors* L.

Obtained in Anglesey and on the Dee estuary.

A female shot on the Dee estuary about 1860 by the late James Kemp is recorded by Coward in *V. Fauna Cheshire*, I., 332. A male was shot near Holland Arms, Anglesey, early in 1919 by Mr. L. R. A. Gatehouse (*Brit. Birds*, XIII., 85).

147.—GARGANEY. *Anas querquedula* L.

Rare visitor to flat country near or on the coasts.

On 2nd August, 1917, Mr. J. A. Pownall shot a male in eclipse plumage in a bog near Valley, Anglesey (*Brit. Birds*, XI., 138).

148.—WIGEON. *Anas penelope* L.

Winter migrant, abundant on flat coasts, especially in the west; rarer inland; has bred in Merioneth.

A white Wigeon was shot on the Dee estuary by James Kemp (*V. Fauna Cheshire*, II., 30). Mr. R. W. Chase saw thirteen on Barmouth estuary, 23rd August, 1918—an early date. They appeared to be very tired, several being asleep.

[AMERICAN WIGEON. *Anas americana* Gm.

An adult male was watched on Presaddfed Lake, near Holyhead, 10th June, 1910, by Messrs. C. Oldham, J. Steele Elliott, and Rev. D. Edmondes Owen. Possibly escaped from Woburn (*Brit. Birds*, IV., 87 and 256.)].

149.—COMMON POCHARD. *Nyroca ferina ferina* (L.).

Winter visitor, fairly common, but irregular in occurrence and distribution: occasionally breeds in Anglesey and Merioneth.

In Anglesey three were seen on Llyn-y-parc, above Beaumaris, 16th April, 1907, by Mr. H. King, while on 23rd June, 1910, Mr. C. Oldham saw two males and a female in company on Presaddfed Lake. Mr. G. Bolam states that he saw a brood of young with their mother on Bala Lake, 8th June, 1906, but they afterwards disappeared.

150.—FERRUGINOUS DUCK. *Nyroca nyroca* (Güld.).

Rare visitor, recorded in Montgomeryshire and Carnarvonshire.

In addition to the two Montgomeryshire examples, Mr. C. Oldham records in *British Birds*, VIII., 120, an adult male seen on the shallow pools at Afonwen, 27th August, 1914.

151.—TUFTED DUCK. *Nyroca fuligula* (L.).

Winter visitor, not very common anywhere in the district; breeds in Anglesey and Merioneth.

In Anglesey Mr. H. King reports numbers every winter, while one pair breeds annually on Llyn Bodgolched, Beaumaris. A drake which he saw on a pool near Gaerwen, 11th May, 1907, when disturbed always returned to the same place. Mr. C. Oldham observed a pair on Tal-y-llyn Lake, 29th September, 1913. Mr. G. Bolam states that on Bala Lake one or two pairs nested in 1906 and the young were hatched but not reared to maturity.

152.—SCAUP DUCK. *Nyroca marila marila* (L.).

Winter visitor, not uncommon on flat coasts; rare on fresh water.

Mr. F. C. Coburn shot a female at Capel Curig in November, 1909. The stomach of a male shot on the Dee estuary, 14th November, 1888, and examined by Dr. R. Newstead, contained cockle-shells.

153.—GOLDEN-EYE. *Bucephala clangula clangula* (L.).

Winter visitor, common on the coast, especially in the west; fairly common on inland waters.

154.—LONG-TAILED DUCK. *Clangula hyemalis* (L.).

Rare winter visitor to the coasts, chiefly in the west; obtained once inland.

Mr. A. Geoffrey Leigh obtained a young male on Malldraeth Bay, Anglesey, 23rd November, 1911. One was seen at close quarters by Messrs. Dockray and Coward on the Dee estuary, 11th October, 1904, while a young bird was shot by Mr. H. Franklin at Towyn, 13th December, 1909.

155.—EIDER DUCK. *Somateria mollissima mollissima* (L.).

Recorded only twice.

In *British Birds*, VII., 23, two drakes are recorded as seen by Mr. F. Brownsword swimming in Colwyn Bay, 15th March, 1913.

156.—COMMON SCOTER. *Oidemia nigra nigra* (L.)

Plentiful on the sea in winter; whilst numbers stay throughout the year; very rare inland.

Between 31st July and 15th August, 1909, Dr. C. L. Williams saw many hundreds of Scoters on the sea off Abergele, males greatly predominating. In *British Birds*, VII., 118, Mr. T. A. Coward records a long line, numbering several thousands, travelling eastwards from Colwyn towards Abergele, 22nd June, 1913. Mr. R. W. Jones adds that numbers stay all summer off Llandudno, moving eastwards daily to feed, but returning towards Anglesey each evening to roost. Inland two were shot out of three on Llyn Hir, Llanerfyl, Montgomeryshire, 7th September, 1910.

157.—VELVET SCOTER. *Oidemia fusca fusca* (L.).

Frequent visitor between autumn and spring to the coasts; recorded once inland.

The following are additional records. Dr. C. L. Williams is practically sure that there were several Velvet Scoters amongst the Common Scoters mentioned above. Mr. Charles Oldham also records an adult male and female (or young male) with Common Scoters at Old Colwyn, 14th April, 1911 : two in the same place, 12th April, 1914 : two adult males with Common Scoters, Abergele, 16th September, 1911 ; and one on the sea off Mochras, 4th October, 1913. Mr. R. W. Jones has often noted it off Llandudno : he saw four female or immature birds, 30th November, 1909, while in 1919 he observed one on 3rd May and five on 4th August. Inland Mr. George Bolam saw one on Bala Lake, 3rd November, 1906.

158.—SMEW. *Mergus albellus*, L.

Winter visitor, occurring sometimes on the north coast ; very rare in the west and inland.

Dr. C. L. Williams records a local example at Mr. Batters', Talacre. In Merioneth Mr. Rawlings reports a female shot at Barmouth in January, 1909, whilst in Montgomeryshire an immature male was shot near Churchstoke, 5th January, 1909, and examined by me.

159.—GOOSANDER. *Mergus merganser merganser* L.

Winter visitor, not uncommon on north and west coasts, and on the Upper Dee. Not recorded in Anglesey or Lleyn.

Llyn Ogwen appears to be a favourite resort of the Goosander. A male seen there on 25th December, 1911, was joined by a female on the 27th. In the preceding March four—one an old drake—stayed for several weeks (King), whilst a pair was seen there 2nd April, 1913. A party visited Lake Vyrnwy, 8th February, 1913.

160.—RED-BREASTED MERGANSER. *Mergus serrator* L.

Winter visitor in fair numbers to the coasts ; less frequent inland.

In Anglesey Mr. C. Oldham saw nineteen in Valley river, Penrhos, 25th October, 1912. In Merioneth also he noted five on the Broad Water, Towyn, 2nd October, 1913. Mr. R. W. Jones saw two pairs in Conway Bay, 30th April, 1912. and four pairs three days later. In 1919 he saw three off the Great Orme's Head so early as 10th August.

161.—HOODED MERGANSER. *Mergus cucullatus* L.

Recorded on Menai Straits and at Barmouth.

In the loan collection of Mr. R. W. Chase's birds in Birmingham Museum is a case containing an adult male and an immature bird shot near Barmouth in 1864, by Sir William Clayton by a clever right and left. They are recorded in the supplement to Dresser's *Birds of Europe*, IX., 296. They were presented to Mr. Chase by Rev. Walter Earle of Yarlet Hall, Staffordshire.

162.—WOOD PIGEON. *Columba palumbus palumbus* L.

Common throughout North Wales; often large flocks in winter.

163.—STOCK DOVE. *Columba œnas* L.

Resident, and more or less common throughout the district; more numerous on the coasts than inland.

164.—ROCK DOVE. *Columba livia livia* Gm.

Resident; a few pairs breed on precipitous coasts of Carnarvon and Anglesey and possibly inland.

Pennant states in *British Zoology*, "many breed, as I have observed, on the cliffs of the coast of Wales." The late C. K. Siddall told me that he had seen Rock Doves several times at Porthwen, Bull Bay, Anglesey—seven one day in September, 1903. Two or three seen at Llwyngwril by Mr. A. W. Boyd in August, 1906, appeared to be totally wild birds. Pennant in his *Tour*, II., 245, mentions Rock Pigeons as breeding on the Bird Rock, Towyn.

165.—TURTLE DOVE. *Streptopelia turtur turtur* (L.).

Summer migrant; common in the eastern half of the district and gradually increasing and spreading westwards.

In Anglesey Mr. T. Owen noted one north of Penmon, 15th May, 1912. In Carnarvonshire Dr. N. F. Ticehurst saw one on Bardsey, 16th June, 1913, and three occurred there between 2nd and 7th September following. Mr. R. W. Jones notes the species as increasing round Llandudno, while Mr. King has seen it between Aber and Bangor, and found it nesting at Benarth, Conway. Mr. Cummings also saw one at Llandwrog,

9th September, 1918, and Mr. C. Oldham one at Clynnog Fawr, 7th June, 1915.

166.—PALLAS'S SAND-GROUSE. *Syrrhaptes paradoxus* (Pall.).

Has occurred on one or two occasions on the west coast.

167.—BLACK GROUSE. *Lyrurus tetrix britannicus* With. and Lönnb.

Resident and indigenous in Montgomeryshire, where it is fairly common: a few here and there in the other counties, except Anglesey; usually introduced.

Mr. C. E. Munro Edwards states that the last pair of Black Game shot in the Dolgelley district (prior to their reappearance in 1895) were killed on Hengwrt Moor above Drws-y-nant Inn, about 1868. Afterwards none were noted till after the severe winter of 1894-5, when a pair settled down on suitable rough ground below the heather line at Cefn Creian near Drws-y-nant. In August, 1895, a young Blackcock with mottled plumage was shot on this farm. Since then Black Game have steadily increased in this neighbourhood and extended over the Cader Idris range. In August, 1901, Mr. Edwards found a strong brood of young above Llyn Gwernan. Mrs. Scott, of Peniarth Ucha, turned some down in her woods. The late Mr. Charles G. Beale shot several Blackcock in recent years on his moor on Rhinog Fawr. Few young survived the inclement summer of 1907. Black Game were introduced at Lake Vyrnwy, but very few are to be seen there (Bolam).

In September, 1915, many were noted by Mr. C. Oldham on the moors just south of Corwen.

Mr. R. Morgan says that Black Game used to occur in the Eryrys district near Llanarmon, but have been extinct there for over sixty years.

In *British Birds*, 1909, p. 385, Mr. J. G. Millais describes a covey of seven hybrid Black and Red Grouse killed on Llanerch bog near Bala, in August, 1908. Two were preserved, one of which, a female, is shown in a photographic plate.

168.—RED GROUSE. *Lagopus scoticus* (Lath.).

Resident and common on heather-clad moors and mountains.

Pennant in his *Tour*, II., 394, states that there were a few Red Grouse on the "Rivals," and Mr. C. Oldham saw several there in September, 1914.

[PTARMIGAN. *Lagopus mutus mutus* (Montin.).

The tradition of the former existence of Ptarmigan in Wales is also mentioned in Stephens' continuation of Shaw's *General Zoology*, 1819, XI., 289.]

169.—PHEASANT. *Phasianus colchicus* L.

Common in all counties.

170.—COMMON PARTRIDGE. *Perdix perdix perdix* (L.).

Common in all counties, and up to 1,200 feet elevation.

In the *Field*, 1st June, 1912, is an account of a brood of thirteen, apparently four or five days old, at Carno, as early as 26th May.

171.—RED-LEGGED PARTRIDGE. *Alectoris rufa rufa* (L.).

An introduced species, met with in all counties except Carnarvon; rare.

The egg brought in to Mr. Rawlings, Barmouth, was in 1898—the first recorded instance of nesting in the locality.

172.—QUAIL. *Coturnix coturnix coturnix* (L.).

Irregular summer migrant, met with in all counties; numerous in 1870 and 1893.

Pennant in *British Zoology* mentions that "Mr. Holland of Conway once found a nest of twelve eggs, eleven of which were hatched." This would be prior to 1776.

173.—CORNCRAKE. *Crex crex* (L.).

Summer migrant, common in all counties (especially Anglesey) in lowlands, and on hillsides up to 1,000 feet elevation.

Mr. S. G. Cummings heard one calling at Dolgelley as late as 19th July, 1912. It is worth noting as showing the curious ideas of the early naturalists in regard to migration, that Pennant writes of the Corncrake in Anglesey:—"They appear here about the 20th of April—supposed to pass over from Ireland, where they abound: at their first arrival it is common to shoot seven or eight in a morning: on their arrival they are

very lean, weighing only six ounces, but before they leave this island grow so fat as to weigh above eight (*Brit. Zool.*). Dr. N. F. Ticehurst noted at least ten pairs nesting on Bardsey in June, 1913.

174.—WATER RAIL. *Rallus aquaticus aquaticus* L.

Common in winter on lowland marshes; nest rarely found, but many pairs breed.

One of the most interesting facts brought to light by the investigations of the B.O.C. Migration Committee is the great extent to which the Water-Rail is migratory on the Welsh coast. In 1909 several were noted at the Bardsey lighthouse on the nights of 15th and 27th September; six on 5th and 6th November, and large numbers going south the following night, when fifty were killed. In 1913, too, three were noted there, 24th and 25th March; and fifty seen and fourteen killed five nights later. The same night twelve were seen and eight killed at the Skerries light. It appears from this that the Water-Rail, usually rather a solitary bird, is gregarious at the spring and autumn seasons of migration.

175.—BAILLON'S CRAKE. *Porzana pusilla intermedia* (Herm.).

Obtained once only near Conway estuary.

176.—SPOTTED CRAKE. *Porzana porzana* (L.).

Rather rare and irregular visitor, chiefly in autumn and winter.

In Anglesey Mr. F. H. Mills records one on bog at Penmynydd, while in Denbigh and Flint Mr. W. A. Rogers reports one caught by a dog at Rhuddlan in December 1907; Mr. Ruddy noted one at Llangollen, 10th April, 1907; and Dr. C. L Williams says it has been obtained at Ysceiliog, near Holywell.

177.—MOOR HEN. *Gallinula chloropus chloropus* (L)..

Resident, common everywhere in suitable country.

Dr. N. F. Ticehurst noted one or two in withy beds on Bardsey Island in June, 1913. In the *Migration Reports* single birds are recorded at the Bardsey light, 12-13th April, 1910; 9-10th April and 5-6th May, 1913; and at the Skerries light, 29-30th March, 1913.

178.—COOT. *Fulica atra atra* L.

Resident; irregularly distributed throughout the district: occurs on the sea in winter.

One was killed at the Skerries light 13th April, 1910. Mr. R. W. Jones noted one at Llandudno, 19th January, 1908. About Colwyn Bay Mr. Douglas Witty records the Coot as increasing: it established itself as a breeding species in two localities quite recently and is resident there.

178a.—CRANE. *Megalornis grus grus* (L.).

Recorded once, in Anglesey.

An example of this large species was obtained at Rhosneigr, Anglesey, 16th May, 1908. It was seen in the evening by a man named David Owen, who, after stalking it for two hours, got within four yards of the bird as it stood in some flood-water on the common north of the Crigyll River. He hoped to capture it alive but his dogs refused to tackle it, so he shot it as it rose on the wing. He took it to Colonel Long who sent it to Chester Museum. He informed me that it had a strong, disagreeable oily odour. This is an addition to the Welsh fauna.

179.—GREAT BUSTARD. *Otis tarda tarda* L.

Very rare; recorded twice, many years ago, and once more recently.

180.—LITTLE BUSTARD. *Otis tetrax* L.

Very rare; recorded in Anglesey only.

181.—STONE CURLEW. *Burhinus œdicnemus œdicnemus* (L.).

Obtained in Merioneth and on the Dee Estuary.

It has also occurred in Cardiganshire (Salter).

182.—CREAM-COLOURED COURSER. *Cursorius gallicus gallicus* (Gm.).

Recorded twice.

183.—RINGED PLOVER. *Charadrius hiaticula hiaticula* L.

Resident, common on all flat parts of the coast; very rare inland.

On 20th August, 1914, Mr. S. G. Cummings caught one of two young at Bodfan, Carnarvonshire, with quills only just showing—a late brood. Dr. N. F. Ticehurst reports this species as absent from Bardsey in summer.

184.—GOLDEN PLOVER. *Charadrius apricarius* L.

Occurs in flocks, autumn and spring, often numerous; many breed on the moors.

185.—GREY PLOVER. *Squatarola squatarola* (L.).

Occurs between August and May on the coasts and estuaries, generally in small parties.

Although I have never seen large numbers together, Mr. Coward (*Vert. Fauna of Cheshire*, I., 382) describes the Grey Plover as occurring in flocks of eighty to one hundred on the Dee estuary, at the edge of the saltings, with other waders. A fowler named Lawton once killed over 120 at a shot with the punt-gun (II., XXXI.). On 16th May, 1910, I saw three on Malldraeth Estuary, while in October, 1912, Mr. C. Oldham saw many scattered along the seaboard from there to the Valley river. On 2nd September, 1916, Mr. S. G. Cummings noted ten—three males in breeding plumage—on Foryd Bay, Carnarvonshire.

186.—DOTTEREL. *Charadrius morinellus* L.

Occurs sparingly on the mountains in spring; rarely in autumn; has also been met with on land reclaimed from the Dee estuary.

Mr. S. G. Cummings found the dry remains of one on Morfa Dinlle, Carnarvon, in August, 1916.

187.—LAPWING. *Vanellus vanellus* (L.).

Resident; very common, not only on lowlands, but on moors and hillsides.

In January and February, 1913, many came to the lighthouses on Bardsey and the Skerries at night.

Mr. C. Oldham has noticed that the Lapwing is remarkably scarce at Beddgelert: during a week's stay in June, 1914, he saw only one pair.

On 1st May, 1911, Mr. Cummings watched a sitting Peewit at Caerwys protect its eggs against a sheep which was walking up to the nest. As the sheep approached the bird left the eggs and sprang up at its nose repeatedly, uttering a continuous crying noise all the time. So persistent was the attack that the sheep was brought to a standstill. The eggs were near hatching, which would account for the bird's behaviour.

188.—TURNSTONE. *Arenaria interpres interpres* (L.).

Not uncommon on the west coast in autumn and spring, some remaining through the summer; rarer on the north coast.

Ray observed small parties on the Merioneth coast. Turnstones occur on the coasts in every month of the year; records are so numerous that they need not be given here in detail.

189.—OYSTER CATCHER. *Hæmatopus ostralegus ostralegus* L.

Resident, common on the coasts; flocks in winter; very rare inland.

On the Dee estuary, according to Mr. Coward, the Oystercatcher is most abundant as a bird of passage in spring and autumn. (*V. Fauna, Cheshire*, I., 387.) The following incident tends to show that this species is sometimes double-brooded. Mr. C. Oldham found a nest with three eggs hatching at Point of Air, 31st July, 1915. On 6th August, 1914, Mr. S. G. Cummings caught a half-fledged young one, unable to fly, in Carnarvon Bay. When first seen it was in the water, but ran ashore into the sandhills at great speed. On 13th June, 1918, he found a nest with three eggs close to the cliff walk at Moelfre, over 100 feet above sea level.

190.—AVOCET. *Recurvirostra avosetta* L.

Said to have occurred in Anglesey and Merioneth.

191.—BLACK-WINGED STILT. *Himantopus himantopus* (L.).

Recorded in Anglesey.

192.—GREY PHALAROPE. *Phalaropus fulicarius* (L).

Occasional visitor, not uncommon; occurs chiefly on autumn passage.

One obtained at West Kirby, Cheshire, 5th November, 1880, is recorded in the *Field*, 1880, 715, whilst another on Hilbre Island

in November, 1898, is recorded in C. & O. *Birds of Cheshire*, 256. I examined one shot near Carno, Mont., 25th October, 1907.

193.—RED-NECKED PHALAROPE. *Phalaropus lobatus* (L.).

Rare visitor to the coasts; recorded six times.

Mr. F. L. Congreve has a specimen obtained on the Dee Marsh in the winter, 1899-1900 (*V. Fauna Cheshire*, I., 390).

194.—WOODCOCK. *Scolopax rusticola* L.

Common from autumn to spring: breeds sparingly in all counties except Anglesey.

In the Dolgelley district Mr. C. E. Munro Edwards reports nests at Penmaen Ucha; and Dolgyfeiliau in 1890.

195.—GREAT SNIPE. *Gallinago media* (Lath.).

Rare winter visitor, said to have occurred in all counties.

Beckwith in his Notes on Shropshire Birds, contributed to the *Field* in 1885, incidentally mentions a Great Snipe obtained "near Dolgelley last summer." Mr. Graham C. Heasman writes in the same journal that one weighing 7½ ozs., was shot at Holt, Flintshire, 3rd September, 1911.

196.—COMMON SNIPE. *Gallinago gallinago gallinago* (L.).

Resident; common on bogs everywhere; more numerous in winter.

In 1907 Mr. C. Wilson found a nest on Eunant Moor with one egg and two newly-hatched young, 21st August,—quite an exceptional occurrence. In *British Birds*, VIII., 20, Mr. F. H. L. Whish records an example of the melanistic form known as Sabine's Snipe, shot at Rûg in March, 1914.

197.—JACK SNIPE. *Limnocryptes gallinula* (L.).

Winter visitor; fairly common in most districts, especially in the west, but decreasing in some.

198.—DUNLIN. *Erolia alpina alpina* (L.).

Common on flat coasts in autumn and winter, some remaining through the summer; breeds sparingly on the Denbigh and Merioneth moors, and formerly nested on the Dee Marshes.

In 1906 Mr. G. Bolam found at least three pairs breeding by little pools in the peat on the moors above Bala, and single pairs in several other localities in that district. A dead Dunlin was found on Hirnant moor, Montg., by Mr. R. Roberts, 26th April, 1911. Birds, no doubt nesting, were seen by Mr. C. Oldham on Ffriddog, four miles S.E. of Llanwrst, 17th June, 1917.

On the night of 29-30th April, 1913, large numbers were at the Bardsey lighthouse, thirty being killed; they left to the south at dawn. They occurred there also in September but none in June (Ticehurst).

199.—LITTLE STINT. *Erolia minuta* (Leisl.).

Autumn and spring migrant met with occasionally on the coasts and estuaries.

Additional records—

Anglesey. Fifteen Rhosneigr 23rd May, 1907 (R. W. Jones).

Denbigh and Flint. One seen Heswall (Cheshire) 30th August, 1905 (*V. Fauna Cheshire*, I., 398).

200.—TEMMINCK'S STINT. *Erolia temminckii* (Leisl.).

Recorded once on the Dee Estuary.

201.—CURLEW SANDPIPER. *Erolia ferruginea* (Brünn.).

On autumn and spring passage occurs on the coasts and estuaries, especially the estuaries of the Dee and Dovey; not common.

In Carnarvonshire Mr. S. G. Cummings observed one on Bodfan marsh, Llandwrog, 26th August, 1914, and several on Foryd Bay in August, 1916. He also saw a pair on the Dee Estuary, 9th October, 1909, where others are recorded in the *B.O.C. Migration Reports*—twelve on 24th September, 1911. Dr. C. L. Williams noted a flock at Foryd, 1st October, 1903. In Merioneth Mr. H. G. Attlee heard and saw several on the Artro Estuary, 17th and 30th August, 1911; while Mr. H. Franklin obtained two at Towyn in April, 1912. Mr. C. Oldham saw two there with Dunlins, 2nd October, 1913.

202.—PURPLE SANDPIPER. *Erolia maritima maritima* (Brünn.).

Not uncommon from winter to early summer in the west, rare in the north; generally occurs singly or in pairs.

In Anglesey Mr. T. A. Coward records one obtained at Holyhead, 8th January, 1908, while Mr. King saw one at Penmon Point, 8th February, 1911, and in the *Migration Report* two are mentioned on Menai Straits, 11th May, 1912. In Carnarvonshire Mr. R. W. Jones observed eight on the Great Orme's Head, 9th January, 1915 ; eighteen on 30th March, 1918, and twenty-one, 27th November, 1915. The *V. Fauna of Cheshire* mentions several on the Dee Estuary—party of twelve seen 25th April, 1909. In Merioneth Mr. H. G. Attlee saw one at Mochras 20th and 30th August, 1911. Mr. J. K. Stanford saw one on Bardsey, 3rd September, 1913.

203.—KNOT. *Erolia canutus canutus* (L.).

Migrant, appearing in flocks on flat coasts from autumn to spring.

In the *Migration Reports* one is recorded at the Skerries Light. 18-19th August, 1912, and many on the 26-27th. The same year several were at the Bardsey Light in October and November, while Mr. C. Oldham saw about fifty in the Valley River, Anglesey, 15th October. Dr. C. L. Williams noted some at Point of Air, 4th and 15th October, 1903, and Mr. D. Witty saw one in breeding dress at Colwyn Bay, 6th May, 1909. In Merioneth Lord Lilford recorded a small flock on the Dovey Estuary in August, 1851, while Mr. H. G. Attlee, in August, 1911, observed several at Mochras, 17th to 31st, and on the Traeth Bach 23rd. Single birds were taken at the Bardsey light 2-3rd and 6-7th September, 1913 (Ticehurst).

204.—SANDERLING. *Calidris alba* (Pallas).

Occurs on flat parts of the coast in autumn and spring ; most numerous in May.

Mr. H. G. Attlee observed eleven at Mochras, 30th August, 1911 : all but two were in winter plumage. Mr. S. G. Cummings saw seven in Carnarvon Bay, 10th August, 1918—one in breeding plumage ; while in 1914 Mr. R. W. Jones saw a party of seven on the Conway Estuary on 16th July.

205.—RUFF. *Machetes pugnax* (L.).

Occasional visitor in spring and autumn ; chiefly to the Dee and Dovey estuaries.

206.—COMMON SANDPIPER. *Tringa hypoleuca* L.

Summer migrant : common in all suitable places, except in Lleyn.

207.—WOOD SANDPIPER. *Tringa glareola* L.

Very rare: obtained in Carnarvon, Merioneth, and Montgomeryshire.

208.—GREEN SANDPIPER. *Tringa ochropus* L.

Not uncommon in the eastern half of the district in autumn, and occasionally met with at other times: rare in the west.

In Carnarvonshire Mr. Ruddy records one shot near Pwllheli, 31st December, 1906, while Mr. S. G. Cummings noted one on Bodfan Marsh, Llandwrog, 20th August, 1914. Mr. D. Witty saw it at Colwyn Bay on three occasions in 1907-9. Mr. Cummings also noted single birds on the Dee Marshes, 9th October, 1909, and 2nd February, 1911, and on the Foryd, Carnarvon, 29th August, 1917.

209.—COMMON REDSHANK. *Tringa totanus* (L.).

Common as a migrant on and near the coasts; rare inland; a few pairs breed in scattered localities.

As a breeding species the Redshank has greatly increased in recent years in Anglesey and Carnarvonshire. Parties have been seen on Bardsey by Mr. T. A. Coward in June, 1905, and by Dr. N. F. Ticehurst in June, 1913. In Montgomeryshire Mr. C. Wilson shot two on a hill near Lake Vyrnwy, 20th August, 1907.

210.—SPOTTED REDSHANK. *Tringa erythropus* (Pall.).

Very rare; obtained on three or four occasions.

211.—GREENSHANK. *Tringa nebularia* (Gunner.).

Not uncommon on the coasts and estuaries in autumn and spring; fewer in winter; rare inland.

Mr. S. G. Cummings saw twelve, in twos and threes, in Foryd Bay, Carnarvon, 7th September, 1916. Mr. F. Coburn observed two on Barmouth Estuary 12th September, 1908; while inland Mr. G. Bolam records one on Bala Lake 27th August, 1906.

212.—BAR-TAILED GODWIT. *Limosa lapponica lapponica* (L.).

Not uncommon on flat parts of the coasts and estuaries in autumn; fewer in spring; rare inland.

In Anglesey Mr. C. Oldham observed in October, 1912, ten at Penrhos; twelve at Four-mile Bridge; and several on Malldraeth. In Carnarvonshire also he saw three at Pwllheli, 1st October, 1914, while Mr. Cummings noted throughout August, 1914, small parties on the shore at Llandwrog along with Turnstones and Ringed Plovers: he also saw one on Foryd Bay, 4th August, 1917. A considerable number were at the Bardsey Light between 1 and 4 a.m., on 14th November, 1909. In Merioneth Mr. Attlee saw one at Mochras, 24th August, 1911. See also note under the next species.

213.—BLACK-TAILED GODWIT. *Limosa limosa* (L.).

Somewhat rare spring and autumn visitor to the estuaries.

From a study of both species of Godwit in the Zoological Gardens Mr. Attlee has come to the conclusion that the two which he saw on the Artro estuary on 9th September, 1906 (*Fauna*, p. 364,) were Black-tailed, not Bar-tailed Godwits. In the Birmingham *Daily Mail*, 17th April, 1909, Mr. F. Coburn records watching four Black-tailed Godwits on this same estuary on 10th April, 1909. He watched them with glasses for an hour, preening their feathers, etc., and showing the broad black-band on the tail. Mr. Coward (*V. Fauna Cheshire*, I., 415) records having seen five, with Bar-tailed Godwits, at Hilbre Island, 2nd October, 1909: another was seen at Hoylake. Mr. S. G. Cummings watched an adult in almost complete summer plumage in Foryd Bay, near Carnarvon, 28th August, 1916, and again 23rd August, 1917.

214.—COMMON CURLEW. *Numenius arquata arquata* (L.).

Resident and common, breeding on all the moorlands and on some bogs; resorts to the coasts from autumn to spring.

A nest with four eggs was found at Llangollen, 13th April, 1912: this was an exceptionally mild spring, which accounts for the early laying. Mr. H. S. Davenport, however, tells me that in the Bala district April 20th is the average date for a full clutch. Mr. F. C. Rawlings has two clutches of five taken near Barmouth. A White Curlew was shot at Towyn in September, 1913.

215.—WHIMBREL. *Numenius phæopus phæopus* (L.).

A passing migrant in spring and autumn; more numerous on the west than on the north coast—in spring than in autumn.

The northward movement does not commence till quite the end of April, as a rule. In the *Migration Report* for 1913 Whimbrels are recorded during April and May in small numbers at Bardsey, Penrhyndeudraeth, and Conway; while Dr. N. F. Ticehurst observed two or three on Bardsey Island in June, 1913. Mr. Cummings saw about twenty on the Dee Marshes, 7th May, 1911. He also noted single birds or pairs over Dinas Dinlle during August, 1914, and Foryd Bay, Carnarvon in August, 1916.

216.—BLACK TERN. *Hydrochelidon nigra nigra* (L.)

Not uncommon as a passing migrant; occurs chiefly over estuaries and pools.

In Anglesey Mr. King saw one over Llyn Bodgolched, north of Beaumaris, 4th May, 1909, while Mr. W. Glynn Edwards saw six over Presaddfed Lake, 21st May, 1909, and Dr. C. B. Ticehurst one at the South Stack on 1st June, 1909. Mr. Siddall also saw one in Bull Bay, 8th September, 1909. It will be noticed that all these were in the same year, as also was one which I examined shot at Bettws-y-coed early in May; this was in summer plumage. On the 15th of the same month one was shot at Towyn. Dr. W. G. Stone obtained one at Newtown, Mont., 16th April, 1910.

217.—SANDWICH TERN. *Sterna sandvicensis sandvicensis*. Lath.

Breeds in Anglesey: visits Conway estuary in spring and autumn, and has been recorded on the Skerries.

Sandwich Terns were first noted visiting the Conway estuary, by Mr. R. W. Jones, May-August, 1913. Since then they have occurred regularly each summer, and I have seen them as far east as Prestatyn, while in June, 1918, Mr. Cummings saw numbers at the west end of Menai Straits. These, doubtless, come from the breeding colony in Anglesey discovered by Messrs. Cummings and Oldham in 1915, and described by the latter in *British Birds*, IX., p. 73.

218.—ROSEATE TERN. *Sterna dougallii dougallii* Mont.

A small breeding colony on the Skerries, and a large one elsewhere in North Wales.

The colony alluded to has increased greatly of late years—it is rigidly protected—and now numbers about three hundred breeding pairs. It must be one of the largest breeding colonies in Europe. Mr. C. Oldham saw about twelve adults with the Common Terns at Point of Air, 15th July, 1916, but apparently not nesting. Inland an immature Roseate Tern was obtained near Llanymynech, 21st September, 1914.

219.—COMMON TERN. *Sterna hirundo* L.

Summer migrant, met with on all coasts, but most numerous round Anglesey, where it has several breeding stations.

In June, 1908, the Duchess of Bedford found some half-dozen pairs nesting amongst the Arctic Terns on the Skerries, the nests forming a group to themselves, except one which was in a quite different part of the island. The same summer Mr. W. Bickerton spent some time on the Skerries photographing the Terns, and he found several colonies of Common Terns. He adds that "curiously enough the Roseate Terns seemed to prefer associating with the Common Terns rather than with the Arctic, which are the predominating species on the Skerries." In the latter part of July, 1913, Mr. H. G. Attlee noticed a number of Common Terns on Mochras, where in previous years only Lesser Terns had bred: these appeared to be nesting. On 24th July he saw a flock of about fifty off Llanaber, a few miles to the south. In 1910 one or two pairs were found breeding along with the Lesser Terns at Point of Air by Mr. R. D. Roberts, who sent me an egg for identification. In 1915 Mr. Cummings found three pairs nesting there and another nearer Prestatyn, while by June, 1916, Mr. C. Oldham discovered that the colony had increased to about 150 pairs—he counted 126 nests with eggs. Rev. F. C. R. Jourdain, however, tells me that the Common Tern had been known to breed at Point of Air as far back as 1898. In July, 1914, Mr. P. Foulkes Roberts found several pairs nesting on the south side of the Dovey Estuary, near the colony of Lesser Terns mentioned in the *Fauna*, p. 376. During the last three or four years another nesting colony of Common Terns has become established near Connah's Quay.

220.—ARCTIC TERN. *Sterna paradisæa.* Brünn.

Distribution similar to that of the Common Tern, but breeds almost exclusively on the Skerries and off Rhoscolyn.

There is evidence that occasionally both the Common and Arctic Tern will stray on to each other's breeding grounds. This is shown by the above details in regard to the Common Tern on the Skerries, whilst in July, 1911, I identified three pairs of Arctic Terns amongst the Common Terns at Llanddwyn. Eyton's statement, which is called in question in the *Fauna of North Wales*, was therefore possibly correct after all. In 1915 Messrs. Cummings and Oldham found Arctic Terns nesting on the sandhills on the Carnarvonshire side of Aber Menai. In August, 1917, the colony there consisted of many Common and a few Arctic Terns.

NOTE.—It appears from the foregoing and other details that all the species of Tern are apt to change their breeding grounds more or less from year to year, though the Arctic Tern shows a more decided preference for islands than the others, the colony at Aber Menai being the only one on the mainland. None of the Terns breed on Bardsey (Ticehurst).

221.—LITTLE TERN. *Sterna albifrons albifrons* Pall.

Summer migrant, common on the coast; many breeding colonies on flat shores in all the maritime counties, especially in the west.

The breeding colony at Point of Air is old-established, for Mr. H. Ecroyd Smith recorded it in a paper entitled "A day among the bird-breeders at Point of Air" in 1866 (*Zoologist*, 1866, 100). Other species mentioned as breeding there were the Ringed Plover, Oyster Catcher, Sheld-duck, and Stock Dove. He also found a colony the previous year at the eastern end of the Menai Straits, several nests containing *four* eggs which he believed were *not* the produce of two hens. In this, however he was probably mistaken. According to the *Migration Reports*, eggs were found at Point of Air as early as 13th May, 1913. The colony there has increased greatly in recent years. In 1915 Mr. S. G. Cummings thought that it was probably the largest in North Wales. There was also another large colony about three miles off towards Prestatyn.

221a.—SOOTY TERN. *Sterna fuscata* L.

One obtained Barmouth.

On 17th August, 1909, a male was knocked over by a boy with a stick on the Barmouth Golf Links. It was set up by Mr.

F. C. Rawlings who showed it to me. The stomach contained Sand Eels recently taken. It was beginning to moult, the 6th to 9th primaries and two outer tail feathers being new. The specimen is now in the collection of Mr. R. W. Chase.

222.—SABINE'S GULL. *Xema sabini* (Sab.).

Rare autumnal visitor to the coasts.

223.—LITTLE GULL. *Larus minutus* Pall.

Occasional visitor, rare: has been met with on the south-west and north coasts.

224.—BLACK-HEADED GULL. *Larus ridibundus* L.

Resident and common on the coasts; several breeding colonies on inland moors.

There is a breeding colony of some 400 pairs on Presaddfed Lake, Anglesey. Mr. Ruddy reports that in recent years there was a colony on Llyn Cyffynwy, Flintshire, attracted thither by the enlargement of the lake for water supply: the gulls were destroyed by the keepers because they were supposed to take the fish. Mr. V. P. Lort informed me that in 1910 a breeding colony had become established on the lakes at Llanllugan—the first colony known in Montgomeryshire—while in May, 1918, Rev. E. Lorimer Thomas noted large numbers every day along the Severn in the Llandinam district. At the present time I have observed numbers all along the upper Severn Valley, and conclude there must be another colony in the district besides that at Llanllugan.

225.—COMMON GULL. *Larus canus canus* L.

Common on the coast from autum to spring, but does not breed in North Wales.

Although this Gull has never been known to breed in the district, it is worthy of note that in June, 1908, the Duchess of Bedford observed two adults and several immature birds in the neighbourhood of Criccieth; while on 28th June, 1913, Mr. R. W. Jones saw two adults and two young on the Conway Sands. Mr. Cummings saw numbers on Morfa Dinlle, Carnarvon, throughout August 1917, while Mr. C. Oldham has observed adults in June or July at Clynnog, Foryd Bay, and Prestatyn.

226.—HERRING GULL. *Larus argentatus argentatus* Pontopp.

Abundant on the coasts; breeds on islands and coasts of Anglesey and Carnarvon.

227.—LESSER BLACK-BACKED GULL. *Larus fuscus affinis* Reinh.

Fairly common on the coasts as a resident or partial migrant: few breeding places.

An adult was seen on Bardsey by Dr. Ticehurst in June, 1913, and another by Mr. Coward in June, 1905: Mr. H. King saw a pair on the Bird Rock, Nevin, in August, 1907: there is no evidence of the species breeding, however, in either locality. Inland one was seen at Llangollen by Mr. Ruddy in January, and two on 21st March, 1911. On 27th July, 1909, two were seen and one shot near Coedway on the Montgomeryshire border.

228.—GREAT BLACK-BACKED GULL. *Larus marinus*. L.

Fairly common in winter. One or two pairs nest here and there in the west.

In Anglesey Mr. H. King found two pairs nesting in 1908, while in 1909 there were three birds but only one nest. He noted two pairs nesting on Puffin Island in 1909 and 1910. Mr. Oldham records at least four pairs nesting at Pen-y-parc, Bodorgan, in June, 1915. In 1911 Mr. W. Glynne Edwards found two pairs nesting on the Skerries. Pellets from Bodorgan examined by Dr. R. Newstead in March, 1904, contained remains of whelks and shore-crabs. In Carnarvonshire Mr. King saw a pair at the Bird Rock, Nevin, in August, 1907. The island in Llyn Llydaw, mentioned as a beeding place by Pennant, was submerged by the artificial deepening of the lake.

229.—GLAUCOUS GULL. *Larus hyperboreus* Gunner.

Rare winter visitor.

An immature example was shot by Mr. A. Hamilton at Deganwy, 23rd February, 1911, and sent to Chester Museum.

230.—ICELAND GULL. *Larus leucopterus* Faber.

Rare winter visitor to the Dee and Dovey estuaries.

Mr. T. A. Coward records in *Vert. Fauna of Cheshire*, I., 433, an immature bird obtained at Hoylake, Cheshire, about 1872-3.

231.—KITTIWAKE. *Rissa tridactyla tridactyla* (L.).

Common resident on the coasts; breeds in Anglesey and Carnarvonshire.

Dr. N. F. Ticehurst noted numbers off Bardsey 15-21st June, 1913, but none breeding there.

231a.—GREAT SKUA. *Stercorarius skua skua* (Brünn.).

Rare visitor to the coasts.

Professor C. J. Patten records in the *Zoologist*, 1904, 75, having a splendid view of a Great Skua off Holyhead on 20th July, 1903. The Skua was in hot pursuit of a Lesser Black-backed Gull. In the autumn of that year a Great Skua—possibly the same bird—was taken on a baited hook in Douglas Bay, Isle of Man. Mr. R. W. Jones saw a Great Skua on the Conway estuary, 25th August, 1912 (*Brit. Birds*, VI., 163), and two off the Great Orme's Head, 21st September, 1915. He feels sure it occurs more frequently than is supposed (*Brit. Birds*, IX., 127).

232.—POMATORHINE SKUA. *Stercorarius pomarinus* (Temm.).

Occasional visitor to the coasts in spring and autumn.

233.—ARCTIC, OR RICHARDSON'S SKUA. *Stercorarius parasiticus* (L.).

Occasional visitor, chiefly to the western coast and estuaries.

The *Migration Report* mentions one seen flying south over Trearddwr Bay, Anglesey, 29th August, 1911. Mr. R. W. Jones saw one harrying Lesser Terns on Conway Estuary, 11th May, 1912; while in Merioneth Dr. Jackson observed one at Aberdovey during the third week of July, 1908, and Mr. H. G. Attlee watched another harrying Common Terns off Llanaber, 15th July, 1913.

234.—LONG-TAILED, OR BUFFON'S SKUA. *Stercorarius longicaudus* Vieill.

Recorded only once, on the north coast.

235.—RAZORBILL. *Alca torda* L.

Breeds on precipitous coasts; common at sea all round the coast, especially in the west.

236.—COMMON GUILLEMOT. *Uria troille troille* (L.).

Breeds on precipitous coasts; common at sea all round the coast, especially in the west; the "ringed" variety occurs but rarely.

Mr. R. W. Jones observed a "Ringed" Guillemot at the South Stack, 22nd May, 1914 (*British Birds*, VIII., 54).

237.—BLACK GUILLEMOT. *Uria grylle grylle* (L.).

Rare visitor to the coast; formerly bred on the Orme's Heads and off West Anglesey.

In regard to the occurrence of the Black Guillemot on the Orme's Head, mentioned in the *Fauna*, it is worthy of note that Pennant alludes to it on the Great Orme (*Tour*, III., 149), but Williams and Price refer to it on the Little Orme. Mr. Coward (*Vert. Fauna Cheshire*, I., 438) mentions a water-colour sketch of an immature bird in the possession of the late Capt. Congreve, marked "Burton, 1837." This place is on the Dee estuary.

238.—LITTLE AUK. *Alle alle* (L.).

Rarely met with alive, but dead ones are often thrown up on the coasts during gales in winter.

Mr. R. J. Ellis had one brought in by his cat at Abergele, 4th February, 1908. Mr. R. W. Jones records one at Llandudno, 2nd February, 1912. At that time there was a remarkable irruption of Little Auks into Britain, mainly on the east coast. In August, 1911, Mr. H. G. Attlee found the remains of one at Mochras.

239.—PUFFIN. *Fratercula arctica grabæ* (Brehm).

Numerous in summer, and breeds round Carnarvonshire and Anglesey: rare in winter.

The number of Puffins breeding on Puffin Island varies remarkably. They were particularly numerous in 1908, but had dwindled to about twenty pairs in 1911, after which they increased to a small extent up to 1914.

Bell in his *British Quadrupeds*, 2nd ed., p. 313, writes: "In the year 1816 or 1817, a Prussian vessel was wrecked on the S.W. side of Puffin Island on the coast of Wales. The island takes its name from the multitudes of Puffins which frequented it, and it was also colonised by vast numbers of Rabbits. No annoyance had ever been experienced from Rats until the occurrence above mentioned took place; but after that, in consequence of the migration of these animals from the wreck to the shore, and their subsequent rapid increase, the Rabbits were almost if not wholly exterminated, the Puffins were ejected by the destruction of their eggs by the rats, and the parties who rented the island gave up their holdings."

With reference to the number of fish brought in at one time, Mr. O. V. Aplin writes in the *Zoologist*, 1910, 43, that he has seen Puffins bring "a thick bunch of small ones hanging from both sides of the bill—six or seven certainly, and possibly more."

Mr. R. W. Jones thinks that the Puffins on the Great Orme's Head are mostly trippers from Puffin Island, though a few do breed there. Pennant describes them as swarming on the Little Orme's Head, but nowadays they are seldom numerous, though a small number breed there every year.

240.—GREAT NORTHERN DIVER. *Colymbus immer* Brünn.

Not uncommon, autumn to spring, in the west; rarer in the north, and only a straggler inland.

241.—BLACK-THROATED DIVER. *Colymbus arcticus* L.

Occasional visitor to the coasts and estuaries: recorded once inland.

Mr. Coward (*V. Fauna Cheshire*, I., 441) mentions one killed at Puddington on the Dee estuary about 1853. Single birds have been seen off the Great Orme's Head by Mr. R. W. Jones, 30th April, 1910, 30th April, 1911, and 14th May, 1912.

242.—RED-THROATED DIVER. *Colymbus stellatus* Pontopp.

Common on the coast from autumn to May.

Off Llandudno Mr. R. W. Jones says it occurs usually solitary or in pairs. There are specimens in Chester Museum obtained at Point of Air in 1888, and Flint, 1886. An immature bird in the collection of Sir H. B. Robertson was obtained near Pistyll Rhaiadr, 28th December, 1907: this is a long way inland, as also was one at Corwen, 8th January, 1908 (*Zoologist*, February, 1908).

243.—GREAT CRESTED GREBE. *Podiceps cristatus cristatus* (L.).

Not uncommon: a few pairs breed along the English border and in Anglesey, but elsewhere it is only a winter visitor to the coasts and estuaries.

There is practically no doubt that it breeds on Presaddfed Lake, as a pair has been seen there in summer by Mr. C. Oldham and Mr. W. Glynne Edwards. A single bird was seen on Nannau Lake, Dolgelley, 8th April, 1908, by Mr. C. E. Munro Edwards, and an adult in breeding dress on Bala Lake, 29th June, 1917, by Mr. C. Oldham. I have received many additional records of this species on the sea between Llandudno and Abergele in spring and autumn, while Mr. D. Witty observed it on Llyn Fawnog in September and December, 1908.

244.—RED-NECKED GREBE. *Podiceps griseigena griseigena* (Bodd.).

Mr. T. A. Coward (*V. Fauna, Cheshire*, I., 450) mentions one killed on Puddington Marsh about 1853, whilst Mr. J. A. Dockray has seen Grebes probably of this species on the Dee estuary in winter. Mr. D. Witty saw a Grebe at Colwyn Bay, 2nd December, 1909, which he felt sure was of this species. Rev. F. C. R. Jourdain tells me that the Brown collection of skins in the Derby Museum contains a Red-necked Grebe, marked "N. Wales, March, 1882" and a Slavonian Grebe, marked similarly. He believes both birds came from the Conway district.

245.—SLAVONIAN, OR HORNED GREBE. *Podiceps auritus* (L.).

Winter visitor, not infrequent on the Merioneth estuaries; rare elsewhere.

Mr. R. W. Jones observed one below the Great Orme's Head, 24th January, 1914. Three were shot on Lake Vyrnwy in February, 1912 (W. Hampson).

246.—BLACK-NECKED, OR EARED GREBE. *Podiceps nigricollis nigricollis* Brehm.

Rare; met with chiefly in west Anglesey and Merioneth in spring and autumn; nests regularly in one locality.

247.—LITTLE GREBE. *Podiceps ruficollis ruficollis* (Pall.).

Resident and generally distributed, but somewhat local.

248.—STORM PETREL. *Hydrobates pelagicus* (L.).

Met with on the coast occasionally during rough weather in winter.

One was killed at the Bardsey light July 29-30th, 1911—an unusual date for such an occurrence. C. D. Thurston, in the *Field*, 2nd December, 1865, records one at Machynlleth.

249.—LEACH'S FORK-TAILED PETREL. *Oceanodroma leucorhoa leucorhoa* (Vieill.).

Occasional winter visitor to both west and north coasts.

Mr. R. W. Jones saw one below the Great Orme's Head 30th September, 1911: a week later one was knocked down with a cap at Llanllugan, Montgomeryshire.

250.—MANX SHEARWATER. *Puffinus puffinus puffinus* (Brünn.).

Breeds in Lleyn and on adjoining islands; frequent on west coast and off Anglesey.

Mr. T. A. Coward (*V. Fauna Cheshire*, I., 457) states that he has seen birds in June in the Rock Channel off the mouth of the Dee; and on 30th June, 1909, Mr. L. N. Brooke saw four in the Dee off Gayton. Mr. H. G. Attlee observed small parties off Mochras, 30th June, 1909. Mr. R. W. Jones says Shearwaters are to be seen almost any day in summer from the Orme's Head passing between Anglesey and Liverpool Bay.

In the *Zoologist*, 1910, 101, Mr. O. V. Aplin describes the down-plumage of the young from a nestling taken in Lleyn in 1905.

[GREAT SHEARWATER. (*Puffinus gravis.*)

A Shearwater thought to be of this species was seen by Dr. N. F. Ticehurst flying at sea off the south end of Bardsey, 12th

September, 1913. It was larger than the Manx Shearwater, brownish-black above, and brownish-white below.]

251.—FULMAR. *Fulmarus glacialis glacialis* (L.).

Rare occasional visitor, chiefly to the coast of Merioneth.

["CAPE PIGEON." *Daption capense* (L.).

Obtained once on the Dovey estuary.]

REPTILES.

1.—COMMON LIZARD. *Lacerta vivipara* Jacq.

Common, and generally distributed in all suitable country.

2.—SAND LIZARD. *Lacerta agilis* L.

Occurs in sandhills along north coast of Flintshire: formerly found near Llandudno.

This lizard appears to be extinct now in the Llandudno district, but in 1914 Mr. R. Standen, of Manchester University, found it abundant amongst the sand-hills between Prestatyn and Point of Air. The statement that it occurs on the opposite side of the Dee estuary is confirmed by Mr. T. A. Coward in his recent *Vert. Fauna of Cheshire.* This species can now, therefore, be definitely included in our Welsh Fauna, and the square brackets removed.

3.—BLIND-WORM, OR SLOW-WORM. *Anguis fragilis.* L.

Common, and generally distributed.

Professor Philip White informs me that he has found the Blind-worm common on Bardsey Island.

4.—RING SNAKE. *Tropidonotus natrix* (L.).

Common in all counties except Anglesey, where it occurs but rarely and only in the south.

5.—ADDER, OR VIPER. *Vipera berus* L.

Locally common in all counties.

Mr. G. J. Williams has heard his father speak of a youth dying from the bite of an Adder on Cwmbowydd Bog, Ffestiniog. The dark form known as the Black Adder has been met with at Aberdeunant in Lleyn, by Mr. Ellis Davies.

AMPHIBIANS.

1.—COMMON FROG. *Rana temporaria* L.

Common everywhere.

The elevation reached by the Frog is surprising. In March, 1906, Mr. G. Bolam found it spawning in lakes near the tops of Arennig and Aran.

2.—COMMON TOAD. *Bufo vulgaris* L.

Common everywhere.

3.—NATTERJACK. *Bufo calamita* L.

Common between Prestatyn and Conway; not known to occur elsewhere.

4.—COMMON NEWT. *Molge vulgaris* (L.).

Not authenticated in Anglesey; rare in Carnarvon; common elsewhere.

Mr. G. Bolam found a few by Bala Lake in 1906. The only record for Carnarvonshire is on the Little Orme's Head, where Mr. D. Witty took three males from a small pond in March, 1907: he sent me one of them for identification.

5.—PALMATED, OR WEBBED NEWT. *Molge palmata* (Schneid.).

Common in Anglesey and Carnarvon and along the north coast; found also in Merioneth.

Professor Philip White found it common on Bardsey. Additional localities in Denbigh and Flint are Llansannan and Llysfaen, where it was found by Mr. Oldham, and Llangollen by Mr. Ruddy. It was also found in Merioneth by Mr. G. Bolam in pools near the top of Aran and Arennig, in 1906, and by Mr. C. Oldham in ditches near Barmouth Junction in June, 1917.

6.—GREAT WARTY NEWT. *Molge cristata* (Laurenti.).

Probably occurs in all counties and is numerous in places.

I received specimens in June, 1910, from Mr. R. Morgan, Llanarmon, near Mold.

FISHES.

1.—PERCH. *Perca fluviatilis.* L.

Common ; but in Anglesey and Carnarvon only introduced recently.

2.—RUFF. *Acerina cernua.* (L.).

Occurs in the Severn and tributaries and Lower Dee ; in canals and perhaps one pool.

3.—BASS, OR SEA PERCH. *Morone labrax.* (L.).

Common on many parts of the coast.

4.—COMBER, GAPER, OR SMOOTH SERRANUS. *Serranus cabrilla.* (L.).

Occurs on the west coast, rarely.

5.—RED BAND FISH. *Cepola rubescens.* L.

Seen once off west Anglesey.

6.—DENTEX. *Dentex vulgaris.* (Cuv. & Val.)

Recorded only near Pwllheli.

7.—SEA BREAM. *Pagellus centrodontus.* (Delaroche).

Common.

Mr. S. G. Cummings says Sea Bream are very abundant off Anglesey wherever the coast is rocky and water deep : he used to catch many with rod and line off outlying rocks in autumn.

8.—BLACK SEA BREAM. *Cantharus lineatus.* (Montagu.)

Not common.

9.—RED MULLET. *Mullus barbatus.* L.

Only occasionally met with.

10.—COMMON, OR BALLAN WRASSE. *Labrus maculatus.* Bloch.

Common on rocky coasts, especially Anglesey.

11.—GREEN, OR STRIPED WRASSE. *Labrus mixtus.* (L.)

Common on rocky coasts, especially Anglesey.

Taken at Llwyngwril in September, 1918.

12.—ROCK COOK. *Centrolabrus exoletus.* (L.).

Occurs on the Anglesey coast.

13.—ROCK WRASSE, OR PINK BRAME. *Centrolabrus rupestris.* (L.).

Rare.

Yarrell quotes Eyton's fish as "taken on the coast of North Wales."

14.—CONNOR, GOLD-SINNY, OR GILT-HEAD. *Centrolabrus melops.* L.

Common on Anglesey and Carnarvon coasts.

15.—BERGYLT. *Sebastes norvegicus.* Cuv. & Val.

Recorded once in Dee estuary.

16.—BULLHEAD, OR MILLER'S THUMB. *Cottus gobio.* L.

Common in eastern half of district, and parts of Carnarvon and Merioneth : not known in Anglesey.

17.—FATHER-LASHER, OR SEA SCORPION. *Cottus scorpius.* L.

Common in shore-pools and shallow water.

18.—GREENLAND BULLHEAD. *Cottus grœnlandicus.* Cuv. & Val.

Rare ; obtained in Anglesey.

19.—BUBALIS, LUCKY PROACH, OR FATHER-LASHER. *Cottus bubalis.* Euphr.

Not uncommon in rock-pools.

20.—GREY GURNARD. *Trigla gurnardus.* L.

Common.

21.—RED GURNARD. *Trigla cuculus.* L.

Common.

22.—SAPPHIRINE GURNARD, OR TUB FISH. *Trigla hirundo.* Bloch.

Frequent on the north coast and Anglesey.

Rev. W. Houghton in *Seaside Walks of a Naturalist* mentions finding this species in the weir at Rhos.

23.—PIPER GURNARD. *Trigla lyra.* L.

Off Anglesey ; rare.

Yarrell states that it is "taken occasionally off Anglesey" ; this is probably a mere repetition of Pennant's record.

24.—STREAKED GURNARD. *Trigla lineata.* L.

Off Anglesey ; rare.

25.—POGGE, OR ARMED BULLHEAD. *Agonus cataphractus.* (L.).

Common in Menai Straits and estuarine waters.

26.—LUMP-SUCKER. *Cyclopterus lumpus.* L.

Occurs on all parts of the coast ; not uncommon.

During 1907 about twenty were noted by Mr. G. A. Hutchinson from time to time below the Little Orme's Head.

27.—SEA-SNAIL, OR UNCTUOUS SUCKER. *Liparis vulgaris.* Flem.

Common.

28.—MONTAGU'S SUCKER. *Liparis montagui.* Donov.

Not uncommon in shallow water.

Often taken in Shrimp trawls off the mouth of the Dee (*Vert. Fauna Cheshire,* II., 95).

29.—SPOTTED GOBY, OR JACK SHARP. *Gobius minutus.* Gmel.

Plentiful in shore-pools on all coasts.

30.—ROCK GOBY. *Gobius niger.* L.

Fairly common in pools along rocky shores.

31.—TWO-SPOTTED GOBY. *Gobius ruthensparri.* Euphr.

Common in shore-pools.

32.—PAINTED GOBY. *Gobius pictus.* Malm.

Not uncommon on the north coast and Menai Straits.

33.—WHITE GOBY. *Aphia pellucida.* (Nardo).

Numerous occasionally in shallow water.

In the *Vert. Fauna of Cheshire* this species is described as "one of the most abundant of indigenous fishes in the shallower waters of the Dee estuary and in the sea off the banks in Liverpool Bay."

34.—JOHN DORY. *Zeus faber.* L.

Occasionally taken off the west coast.

35.—SCAD, OR HORSE MACKEREL. *Caranx trachurus.* (L.).

Occasionally met with.

36.—MACKEREL. *Scomber scombrus.* L.

Common : sometimes very numerous in summer.

37.—RAY'S BREAM. *Brama raii.* Bl.

Obtained twice off Anglesey.

Professor Philip White tells me that an example of this rare fish in Bangor University Museum was obtained locally in 1912.

38.—OPAH, OR KING FISH. *Lampris luna.* (L.).

Rare : obtained off west Anglesey and in the Dee and Conway estuaries.

Yarrell gives the date of the Conway specimen as August, 1835.

39.—SWORD-FISH. *Xiphias gladius.* L.

Recorded twice—off Flint and Anglesey.

40.—GREATER WEAVER, OR SEA CAT. *Trachinus draco.* L.

Not common generally, but occurs off the west coast and in Menai Straits

41.—COMMON WEAVER, OR STING FISH. *Trachinus vipera.* Cuv. & Val.

Common on sandy shallows.

42.—DRAGONET. *Callionymus lyra.* L.

Not uncommon, especially off the north coast and Anglesey.

Fairly abundant in the Dee estuary at all times of the year, spawning in local waters (*V. Fauna Cheshire,* II., 102). One caught with rod and line off Llandudno pier-head, 12th November, 1910 (R. W. Jones).

43.—TWO-SPOTTED SUCKER. *Lepadogaster bimaculatus.* (Penn.).

Recorded off west Anglesey.

44.—CORNISH SUCKER. *Lepadogaster gouanii.* Lacep.

Recorded off west Anglesey and in Colwyn Bay.

Rev. W. Houghton in *Seaside Walks of a Naturalist,* p. 35, describes and figures an example of this fish which he found under a stone at Rhos, Colwyn Bay ; adding that it was called the Cornish Sucker "from having been first noticed on the Cornish coast."

45.—ANGLER FISH. *Lophius piscatorius.* L.

Occasionally taken on all coasts.

46.—WOLF FISH. *Anarrhicus lupus.* L.

Recorded off the west coast and in Menai Straits.

47.—TOM POT, OR GATTORUGINE. *Blennius gattorugine.* Bloch.

Met with off Anglesey and the west coast.

48.—SHANNY. *Blennius pholis.* L.

Plentiful in shore-pools everywhere.

49.—MONTAGU'S BLENNY. *Blennius galerita.* L.

Recorded off Anglesey.

50.—BUTTERFISH. *Centronotus gunnellus.* (L.).

Common in rock-pools.

51.—VIVIPAROUS BLENNY. *Zoarces viviparus.* (L.).

Recorded off Anglesey and Barmouth ; not common.

52.—COD. *Gadus morrhua.* L.

Common, especially off rocky coasts.

53.—HADDOCK. *Gadus æglefinus.* L.

Occasionally taken, but not at all common.

The years 1894-8 were marked by an abundance of Haddock off the Dee estuary. It spawns in local waters (*Vert. Fauna Cheshire,* II., 112).

54.—BIB, POUT, OR WHITING-POUT. *Gadus luscus.* L.

Fairly common.

Mr. Johnstone in *Vert. Fauna of Cheshire,* II., 120, states that both this and the next species occur in the Dee estuary, though never very abundant.

55.—POWER, OR POOR COD. *Gadus minutus.* L.

Not uncommon.

56.—COAL FISH. *Gadus virens.* L.

Fairly common, especially round Anglesey.

57.—WHITING. *Gadus merlangus.* L.

Common on sandy coasts at times, chiefly in winter and spring.

The Whiting enters the local waters at the beginning of the year, spawning, and then leaving again about May. Mature fish are common, immature very abundant (*V. Fauna Cheshire,* II., 115.)

58.—POLLACK OR LYTHE. *Gadus pollachius.* L.

Common; very large ones on the Anglesey and Carnarvon coasts.

Mr. W. Glynne Edwards with a party of friends, fishing from a motor-boat off the Skerries in June, 1911, took 223 and 208 Pollack on two days.

59.—HAKE. *Merluccius vulgaris.* Cuv.

Taken occasionally in deep water.

60.—LING. *Molva vulgaris.* Flem.

Not uncommon.

A Ling weighing about 15 lbs. was killed in the Dee estuary 10th November, 1906, by Mr. L. Brooke, who found it stranded among sea-weed near Connah's Quay (Dockray).

61.—FIVE-BEARDED ROCKLING. *Motella mustela.* Flem.

Fairly common where the sea-bottom is weedy.

Taken at Llwyngwril in September, 1918.

62.—FOUR-BEARDED ROCKLING. *Motella cimbria.* (L.).

Much rarer than the last; recorded only off West Anglesey.

63.—THREE-BEARDED ROCKLING. *Motella tricirrhata.* Bloch.

Not uncommon.

64.—GREATER FORK-BEARD. *Phycis blennoides.* Gmel.

Rare; recorded on north coast and off Anglesey.

65.—LESSER FORK-BEARD, OR TADPOLE FISH. *Raniceps raninus.* (L.).

Rare; recorded on north coast and off Anglesey.

66.—HALIBUT. *Hippoglossus vulgaris.* Flem.

Very rarely taken; probably occurs in deep waters away from the coast.

Dr. J. F. Lister has taken one or two small ones off Barmouth.

67.—LONG ROUGH DAB. *Hippoglossoides limandoides.* Bloch.

Very rare; taken Menai Straits.

68.—TURBOT. *Rhombus maximus.* (L.).

Fairly common, except Dee estuary.

A Turbot caught near Pwllheli, 15th June, 1911, was reported in the newspapers as weighing 85 lbs.

69.—BRILL. *Rhombus lævis.* Rondel.

Fairly common.

70.—COMMON TOP-KNOT. *Zeugopterus punctatus.* Bloch.

Rather rare; occurs off Anglesey and the Dee estuary.

Not infrequent off the Dee banks (*V. Fauna Cheshire*, II., 68).

71.—ONE-SPOTTED TOP-KNOT. *Zeugopterus unimaculatus.* (Risso).

Rare; occurs off Anglesey and the Dee.

Not infrequent in the open sea off shore (*V. Fauna Cheshire*, II., 68).

72.—SAIL-FLUKE, MEGRIM, CARTER, OR WHIFF. *Lepidorhombus megastoma.* (Donov.).

Occasionally taken; not common.

73.—SCALD FISH. *Arnoglossus laterna.* (Walb.).

Rather rare.

74.—PLAICE. *Pleuronectes platessa.* L.

Very common, but does not grow large here.

75.—SMEAR DAB, OR LEMON-DAB. *Pleuronectes microcephalus.* Donov.

Fairly common in the west; rarer on the north coast.

76.—POLE-DAB, OR CRAIG-FLUKE. *Pleuronectes cynoglossus.* L.

Not common.

77.—DAB. *Pleuronectes limanda.* L.

Common.

78.—FLOUNDER, OR FLUKE. *Pleuronectes flesus.* L.

Common in the estuaries and ascends rivers for many miles.

79.—SOLE. *Solea vulgaris.* Quens.

Common.

80.—LEMON SOLE, FRENCH SOLE, OR SAND SOLE. *Solea lascaris.* Risso.

Not common.

81.—SOLENETTE. *Solea lutea.* (Risso.).

Fairly common.

One of the most abundant of indigenous fishes in the shallow waters of the Dee estuary (*V. Fauna Cheshire*).

82.—THICKBACK. *Solea variegata.* (Donov.).

Occurs in the Dee estuary and elsewhere.

83.—SHORT SUN FISH. *Orthagoriscus mola.* (L.).

Rare; recorded five or six times.

84.—ATHERINE, OR SAND SMELT. *Atherina presbyter.* Jen.

Common at times.

85.—THIN-LIPPED GREY MULLET. *Mugil capito.* Cuv.

Common at times.

Mr. E. W. Bowcock has often seen quantities of Grey Mullet in the Dysinni just below the bridge at Bryncrug, near Towyn: he adds that in netting two nets are often used, one behind the other, a yard or so apart, on account of the Mullet's jumping proclivities.

86.—LESSER, OR THICK-LIPPED GREY MULLET. *Mugil chelo.* Cuv.

Fairly common.

87.—SAND LAUNCE. *Ammodytes lanceolatus* Lesauv.

Common on sandy coasts.

88.—SAND EEL. *Ammodytes tobianus*. L.

Very common on sandy coasts.

89.—GARFISH. *Belone vulgaris*. Flem.

Common at times.

90.—SKIPPER. *Scombresox saurus*. Flem.

Sometimes common off south-west Anglesey, and in Rhos Weir.

91.—COMMON, OR THREE-SPINED STICKLEBACK. *Gasterosteus aculeatus*. L.

Common in lowlands in suitable waters.

In the Marine Lake at Rhyl a Stickleback occurs in great numbers, which Mr. G. A. Boulenger identifies as the form *G. leiurus*.

92.—TEN-SPINED STICKLEBACK. *Gasterosteus pungitius*. L.

Common in parts of Anglesey, Denbigh, and Flint; not known to occur in the other three counties.

In 1910 it was found on Whixall Moss, on the borders of Flint and Shropshire.

93.—FIFTEEN-SPINED STICKLEBACK. *Gasterosteus spinachia*. L.

Common in weedy rock-pools and shallow parts of the sea.

94.—BROAD NOSED PIPE FISH. *Siphonostoma typhle*. (L.).

Met with occasionally off Anglesey, Barmouth and Aberdovey.

95.—GREAT PIPE FISH. *Syngnathus acus*. L.

The most numerous of the Pipe-Fishes; generally distributed round the coast.

96.—SNAKE PIPE FISH. *Nerophis æquoreus.* (L.).

Not uncommon round Anglesey; occurs in the Dee estuary.

97.—STRAIGHT-NOSED PIPE FISH. *Nerophis ophidion.* (L.).

Recorded only off west Anglesey.

98.—WORM PIPE FISH. *Nerophis lumbriciformis.* (Willughby).

Common in rock pools.

99.—SEA HORSE. *Hippocampus antiquorum.* Leach.

Rare; reported only at Barmouth, where it is not uncommon on the seaweed in the estuary.

100.—PIKE. *Esox lucius.* L.

Not indigenous; rare in the west, common in some parts of the east.

A small one was caught in the River Elwy, near St. Asaph, in August, 1908, and a very large female full of spawn, weighing 19¾ lbs., in the Clwyd, near Rhuddlan, 26th May, 1909. The lake at Llanerfyl, Mont., mentioned in the *Fauna*, is Llyn Gwyddior.

101.—PEARLSIDES. *Maurolicus borealis.* (Nilss.).

Obtained once off Flintshire.

102.—CARP. *Cyprinus carpio.* L.

Not indigenous, but common in the eastern counties; unknown in the west.

Yarrell gives "Cippysg" as the Welsh name of the Carp, but quotes a Welsh scholar to the effect that the name does not occur in Welsh poetry from Aneurin down to the 18th century, though this is not "conclusive evidence of its non-existence in our waters in times far remote."

In Montgomeryshire the Carp attains a very large size. Rev. C. Harington reports that one weighing 15 lbs. was caught in Llyn Grinwydden, near Llanerfyl, a few years ago; while when the pool at Llanerchydol, Welshpool, was emptied in 1904 a Carp weighing 21 lbs. was taken: another weighing

18 lbs. was shot by Captain Lovell in the same pool some twenty years earlier.

103.—GUDGEON. *Gobio fluviatilis.* Flem.

Common in the Dee and Severn, and in some tributaries.

104.—ROACH. *Leuciscus rutilus.* (L.).

Common in pools and rivers in the east ; rare, and probably not indigenous, in the west.

105.—RUDD. *Leuciscus erythrophthalmus.* (L.).

Extremely local ; occurs in Bala Lake, and in certain pools in Denbigh, Flint, and Carnarvon.

Mr. G. Bolam states that in Bala Lake both Roach and Rudd are occasionally netted in large numbers : in July, 1906, he saw a hybrid Rudd-Bream taken by a young Liverpool angler.

106.—DACE. *Leuciscus dobula.* (L.).

Common in streams, but only in the eastern counties.

107.—CHUB. *Leuciscus cephalus.* (L.).

Common in streams in Montgomeryshire ; also in the Lower Dee and tributaries.

Mr. G. Bolam states that the Chub is found in Lake Vyrnwy, where it is increasing in spite of efforts to check it.

108.—MINNOW. *Leuciscus phoxinus.* (L.).

Common and generally distributed, except in Anglesey.

109.—TENCH. *Tinca vulgaris* Cuv.

Fairly common in many ponds in the eastern counties ; not indigenous in the west, but introduced Carnarvon and Anglesey.

110.—BREAM. *Abramis brama.* (L.).

Occurs in the lower Dee and in pools near the English border.

Mr. G. Bolam states that Bream are taken in the Lower Dee, but have not been recognized in Bala Lake. See his note however, under the head of Rudd.

111.—BLEAK. *Alburnus lucidus.* Hech. & Kner.

Occurs in the Severn and lower Dee.

112.—LOACH. *Nemachilus barbatula.* (L.).

Common, but only in the eastern half of the district.

113.—SALMON. *Salmo salar.* L.

Fairly common in the larger rivers and some lakes; least numerous in Anglesey and Montgomery.

Sir C. R. Hoare, in a footnote to his translation of Giraldus Cambrensis' *Itinerary,* says that Giraldus was mistaken in his assertion that Salmon do not penetrate into Bala Lake. Pennant doubtless based his statement (quoted in the *Fauna*) on Giraldus. Of Pont Aberglaslyn Pennant writes (*Tour,* II., 362); "Above is a considerable cataract where the traveller at times may have much amusement in observing the Salmon in great numbers make their efforts to surmount the Wear [Weir]. Near the place is a Salmon fishery. Here had been a Wear in the time of Henry IV." Rev. W. Houghton in *Seaside Walks of a Naturalist,* 38-47, gives an interesting account of salmon-catching at Rhos Weir, the fish being retrieved by a dog. On some of the Salmon he found the crustacean parasite *Lepiophtharies stromii.* During the war the weir fell into disrepair, and it is now (1919) useless.

114.—COMMON TROUT. *Salmo fario.* L.

Common and generally distributed in all suitable waters, and even in apparently inaccessible mountain tarns.

Mr. O. V. Aplin writes in the *Zoologist,* 1910, 107, the Trout in the little river Daron are remarkable for the large size of the red spots on their sides. A Trout weighing over 6 lbs. was caught in Llanberis Lake in August, 1919.

115.—SEA TROUT; SALMON-TROUT; SEWEN. *Salmo trutta.* L. & *S. cambricus.* Donov.

Common in estuaries and rivers near the sea.

Mr. R. W. Jones tells me that Sewen occur occasionally in the stream at Aber; while Mr. G. Bolam states that Sea Trout are found in Bala Lake and the streams entering it, having

been taken in the Little Dee up to a weight of 15 lbs. Sewen have been taken in the Severn at Shrewsbury in May, 1907, and on several more recent occasions fish of one or other varieties of Sea Trout have been seen ascending the weir there in large numbers. No doubt many of these would ascend into Montgomeryshire.

Great Lake Trout. *S. ferox.* Jard.—Catherall's *Handbook to North Wales* mentions this fish as occurring in Llyn Bugail and Mwyngil; also in Llyn-y-Cae at the foot of Cader Idris. Rev. W. S. Symonds in *Records of the Rocks*, p. 108, states that Sir Philip Egerton took it in Bala Lake in 1871.

Black-Finned, or Hog-Backed Trout. *S. nigripinnis.* Günth.—Yarrell received from P. Buckley Williams, Esq., of Pennant, Montg., a notice of the Hog-backed Trout which he states was taken occasionally in Llyn Bugail, about one-third up the west side of Plinlimmon.

Red-Finned Trout.—Mr. C. E. Munro Edwards writes that the Trout in Llyn-y-cae on Cader Idris has nothing to do with the "Redfin" described by Mr. Gallichan, the latter being caught only between March and May in the streams running into the Barmouth Estuary. It is also taken in the Dovey and Glaslyn rivers and is without doubt the "smolt" of *S. cambricus* on its way down to the sea. The Trout in Llyn-y-cae is a sporting little fish (never exceeding ½-lb. in weight) of silvery hue and red spots —not red fins. The "red-fin" or "orange-fin" of the Wnion and other rivers in the district rarely attain ½-lb. in the "smolt" stage.

Salmo Eriox. This migrating trout frequents the Mawddach and Wnion rivers in the autumn and also occurs in the Dovey. The Welsh name Pysgod y ddeilen (Fish of the leaves) is derived from its appearance in the autumn when the leaves are falling.

Loch Leven Trout. *S. levenensis.* Walker.—Abound in the lake at Glascoed which supplies St. Asaph city with water. (W. A. Rogers).

American Brook Trout. *S. fontinalis.*—Rev. C. Harington informs me that in 1907-8 he caught several of these in Llyn Tarw, on the hills above Caersws (Montg.), where he believes the species had been introduced by Lord Joicey.

116.—WELSH CHAR. *Salmo alpinus perisii.* Günth.

Occurs in three lakes in Carnarvonshire and one or two in Merioneth.

There has been much confusion as to the waters in which Char are taken owing to the erratic spelling of Welsh names by the early writers. Ray mentions one habitat as Travennin lake,

meaning Tardennin, the old name of Llyn Quellyn. Speaking of this lake, Pennant says (*Tour*, II., 415) the Char in it are "taken in nets in the first winter months." He also mentions that Rev. Mr. Farrington contributed a paper on Welsh Char to the Royal Society (*Phil. Trans.* 1755) Bingley erroneously states (*Tour*, I., 186) that the Char in Llanberis Lakes had all been destroyed by the copper-works when he was there in 1798. The lake called Bodlyn in the *Fauna* is the middle one of three Gors-y-Geddol lakes. Char used to be caught there in great numbers with a maggot from the middle to the end of October: in 1894 the Barmouth Corporation converted it into a reservoir for the town water-supply, and raised the water-level. After this the Char seemed to disappear, but in 1907 Mr. R. P. Allaway found them as numerous as ever. Mr. Allaway does not know of any lake near Trawsfynydd where there are Char, and he thinks there are none in Llyn-y-Bi. Rev. W. S. Symonds, in *Records of the Rocks*, p. 57, states that there are Char in Llyn Bochlwyd below Glyder Fawr. He probably meant Llyn Cwm Ffynnon on the opposite side of the Glyder. On p. 82 he gives Llyn-y-Gader and Llyn-y-cae as habitats (both lakes on Cader Idris), but no other observer confirms this, and he was probably mistaken.

117.—GRAYLING. *Thymallus vexillifer*. Agass.

Plentiful in the Upper Dee, and occurs in the Severn, Vyrnwy, Tanat, and Camlad.

118.—GWYNIAD. *Coregonus clupeoides*. Lacep.

Found in Bala Lake and a neighbouring pool into which it was introduced.

Mr. G. Bolam states that the Gwyniad spawns in March. Bingley in his *Tour* (II., 194) gives a lengthy account of this fish in Bala Lake, but it contains no original observations, being mainly copied from Pennant.

119.—SMELT, OR SPARLING. *Osmerus eperlanus*. L.

Occurs in spring in many estuaries, especially that of the Conway River.

120.—ANCHOVY. *Engraulis enchrasicolus*. L.

Occasional on the north coast, but never in any numbers.

Pennant obtained it near his residence at Downing in 1769. Dr. J. Travis Jenkins tells me that the Anchovy spawns off

Aberdovey: its eggs were taken there by the Fishery yacht on 14th June and 23rd July, 1907.

121.—HERRING. *Clupea harengus.* L.

Very abundant at times on the west coast; less numerous on the north.

122.—SPRAT. *Clupea sprattus.* L.

Common at times.

123.—PILCHARD, OR SARDINE. *Clupea pilchardus.* Walb.

Rare: has been taken at Barmouth and in Menai Straits.

124.—ALLIS-SHAD. *Clupea alosa.* L.

Taken occasionally in Menai Straits and on the west coast.

Pennant in *British Zoology* states that innumerable elvers "come up the Severn about the month of April, preceding the Shads, which it is conjectured migrate into that river to feed on them."

125.—TWAITE-SHAD. *Clupea finta.* Cuv.

Taken occasionally on all coasts and in Menai Straits.

126.—EEL. *Anguilla vulgaris.* Turt.

Common in pools and rivers, not only in lowlands but high amongst mountains; occurs also in salt water in Menai Straits.

127.—CONGER-EEL. *Conger vulgaris.* Cuv.

Common; especially in Menai Straits and on rocky parts of the coast.

A very large Conger, measuring 5 feet 10 inches and weighing 40 lbs., was stranded at Rhos, Colwyn Bay, 20th August, 1907: after an exciting chase it was killed with a spade by Mr. Allan Morris (W. H. Dobie). Mr. R. W. Jones reports one of 23l bs. taken at Llandudno, 4th November, 1907.

128.—STURGEON. *Acipenser sturio.* L.

Occasional in the Dee and Conway estuaries and elsewhere on the coast.

A Sturgeon weighing over 1 cwt. was shot in the River Conway above Talycafn Bridge, 24th September, 1909. One caught

off St. Tudwal's, 25th May, 1910, was sent to His Majesty the King. Several others taken in the Dee are recorded in the *Vert. Fauna of Cheshire*, II., 158.

129.—SMALL-SPOTTED DOG FISH, or ROUGH HOUND. *Scyllium canicula.* (L.).

Common all along the coast.

130.—LARGE-SPOTTED DOG FISH, NURSE HOUND, or CAT FISH. *Scyllium stellare.* (L.)

Rather rarely met with on the west coast.

131.—BASKING SHARK. *Selache maxima.* (L.)

Not very uncommon off the west coast.

In his *British Zoology* Pennant writes of this large species: "They visited the bays of Carnarvonshire and Anglesey in vast shoals in the summers of 1756 and a few succeeding years, continuing there only the hot months, for they quitted the coast about Michaelmas, as if cold weather was disagreeable to them. Some old people say they recollect the same sort of fish visiting these seas in vast numbers about forty years ago." Since Pennant wrote they seem never to have appeared on these coasts in numbers.

132.—PORBEAGLE, or BEAUMARIS SHARK. *Lamna cornubica.* (Gmel.)

Not uncommon round Anglesey.

Dr. J. H. Lister took one off Barmouth about 1905, it measured over 9 feet.

133.—THRESHER, or FOX SHARK. *Alopecias vulpes.* (Gmel.)

Occasional on north coast and in Menai Straits.

134.—SMOOTH HOUND. *Mustelus lævis.* Flem.

Not very common.

135.—TOPE. *Galeus vulgaris.* Flem.

Fairly common, especially round Anglesey.

136.—BLUE SHARK. *Carcharias glaucus.* (L.)

Common in the west; less frequent on the north coast.

One five feet long and weighing 31 lbs., was caught at Llandudno by Mr. G. H. Harding, 18th September, 1907.

137.—PICKED DOG FISH. *Acanthias vulgaris.* Risso.

Common all round the coast.

138.—MONK-FISH, OR ANGEL FISH. *Rhina squatina.* L.

Not uncommon; occurs on all parts of the coast.

Mr. Rhys P. Allaway has the head of one 48 lbs. weight which he took in a net off Llanbedr in August, 1892: it was 5 feet long. Dr. F. S. Jackson records another of about the same size caught by a man named Evan Roberts, 29th June, 1908, between Aberdovey and Towyn. Roberts states that he caught another, 7 feet long, some years earlier.

139.—TORPEDO, OR ELECTRIC RAY. *Torpedo nobiliana.* Bonap.

Rare; taken in the trawl occasionally.

140.—COMMON OR BLUE SKATE. *Raia batis.* L.

Plentiful.

141.—THORNBACK. *Raia clavata.* (L.)

Abundant.

142.—HOMELYN, OR SPOTTED RAY. *Raia maculata.* Mont.

Not uncommon off the north coast and round Anglesey.

142a.—SHAGREEN RAY. *Raia fullonica.*

Rare: obtained off Anglesey and in Cardigan Bay.

Dr. J. Travis Jenkins informs me that a fine adult male was caught in the trawl of the Fishery steamer three miles east of Point Lynas, Anglesey, on 15th February, 1911. The average depth of water during the haul was 23 fathoms.

143.—STARRY RAY. *Raia radiata.* Donov.

Not uncommon.

144.—PAINTED RAY. *Raia microcellata.* Mont.

Obtained only off west Anglesey and in Tremadoc Bay.

145.—SHARP-NOSED OR WHITE RAY. *Raia alba.* Lacep.

Not uncommon round Anglesey.

146.—CUCKOO RAY. *Raia circularis.* Couch.

Occurs in the Menai Straits.

147.—STING RAY. *Trygon pastinaca.* (L.)

Rare; has been obtained at Barmouth, in Menai Straits and the Dee estuary.

Three taken at Barmouth in 1918.

148.—SEA LAMPREY. *Petromyzon marinus.* L.

Not uncommon in estuaries and rivers near the sea.

149.—LAMPERN, OR RIVER LAMPREY. *Petromyzon fluviatilis.* L.

Common in the principal rivers; also taken in Menai Straits.

150.—MUD-LAMPREY, OR PRIDE. *Petromyzon branchialis.* L.

Occurs in the upper Severn and tributaries, and in the Dee.

Recorded in the Dee (*V. Fauna of Cheshire* II. 168).

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